



# International Abstract of Surgery

SUPPLEMENTARY TO

Surgery, Gynecology and Obstetrics

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JULY, 1926

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*Supplementary to*  
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## CONTENTS

I	Index of Abstracts of Current Literature	iii
II	Authors	ix
III	Editor's Comment	x
IV	Abstracts of Current Literature	1 60
V	Bibliography of Current Literature	61 86

---

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# CONTENTS—JULY, 1926

## ABSTRACTS OF CURRENT LITERATURE

### SURGERY OF THE HEAD AND NECK

#### Head

- BLAIR V P Notes on the Operative Correction of Facial Palsy

#### Eye

- OBARRIO P The Mechanism of Accommodation Confirmed by Experimental Data  
ZIEGLER S L The Surgery of Trachoma Practical Problems  
LOEB C Choked Disk and Vitreous Opacities Following Fracture of Skull  
RUTHERFORD C W Some Essentials of Ghoma of the Retina  
CONWAY J A Two Cases of Cerebral Aneurism Causing Ocular Symptoms with Notes of Other Cases

#### Ear

- GUTHRIE D The Prognosis of Middle Ear Suppuration in Children  
KEEN J A An Investigation of the End Results of Sixty Cases of Radical Mastoid Operation with Special Reference to Hearing

#### Nose and Sinuses

- SHIBLEY G S HANGER F M and DOCHERZ A R Studies on the Common Cold I Observations of the Normal Bacterial Flora of the Nose and Throat with Variations Occurring During Colds  
VAN GILSE P H G Investigations on the Development of the Sphenoidal Sinus

#### Pharynx

- TROTTER W The Surgery of Malignant Disease of the Pharynx

#### Neck

- BERRY SIR J Some Clinical Aspects of Simple Goiter with Remarks on Its Causation  
FELBERBAUM D and FINESILVER B The Substernal Thyroid  
DIXSMORE R S Hyperthyroidism in Children  
BAYLAKES S Experimental Thyrotoxicosis The Thyroid and Its Influence on Gastric Secretion  
READ J M The Prognosis in Exophthalmic Goiter  
FITZGERALD R R A Comparative Study of the Effect of Two Different Preparations of Iodine upon the Pre Operative Basal Metabolic Rate in Exophthalmic Goiter

- GILMAN P K and KAY W E Total Thyroidectomy in Thyrotoxicosis of the Exophthalmic Type A Preliminary Report  
GEIGER H The Fate of the Blood Supply of the Thyroid After Thyroidectomy with Special Regard to the Formation of a New Thyroid Capsule  
BERMAN L The Diagnostic Criteria of Chronic Parathyroid Insufficiency with Special Reference to the Phosphate Content of the Blood  
MILLER J W The Treatment of Laryngeal Tuberculosis with the Goerz Wessely Lamp  
JACKSON C Blastomycosis of the Larynx

### SURGERY OF THE NERVOUS SYSTEM

#### Brain and Its Coverings, Cranial Nerves

- CONWAY J A Two Cases of Cerebral Aneurism Causing Ocular Symptoms with Notes of Other Cases  
TOWNE E B Invasion of the Intracranial Venous Sinuses by a Meningioma (Dural Endotheloma)  
TAYLOR A S Partial Neurectomy of the Sensory Root of the Gasserian Ganglion in Trifacial Neuralgia with Preservation of Corneal Sensation  
SACHS E The Radical Treatment of Trigeminal Neuralgia  
SINGLETON A O Glossopharyngeal Neuralgia and Its Surgical Relief

#### Spinal Cord and Its Coverings

- STETTEN DEW An Extramedullary Tumor of the Spinal Cord Simulating Abdominal Malignancy

#### Peripheral Nerves

- THEARLE W H Radical Phrenicotomy for Tuberculosis  
DAVIES H M Phrenic Evulsion as an Aid in the Treatment of Pulmonary Tuberculosis and Bronchiectasis

#### Sympathetic Nerves

- WINSLOW N Periarterial Sympathectomy  
SEBESTYÉN, G The Effect of Periarterial Sympathectomy upon the Circulation of the Blood

### SURGERY OF THE CHEST

#### Chest Wall and Breast

- BUNTS F E Cysts of the Breast A Statistical Study

FISCHER W The Clinical and Pathologico-Anatomical Diagnosis of Tumors and Cystic Changes in the Breast

14

### Trachea Lungs, and Pleura

THEARLE W H Radical Phrenicotomy for Tuberculosis  
DAVIES H M Phrenic Evulsion as an Aid in the Treatment of Pulmonary Tuberculosis and Bronchiectasis  
ADAM J Four Cases of Tracheal Tumor  
LOREY The Value of Contrast Media in the Bronchi for the Demonstration of Bronchiectases  
ESCUDERO P TERRADA H M and GALLINO M M Visualization of Hepatobronchial Fistulae by Retrograde Filling with Iodized Oil  
JACKSON C Suppurative Diseases of the Lung Due to an Inspired Foreign Body Contrasted with Those of Other Etiology  
BOLDERO H E A and WHITBY L E H Associated Organisms Causing Empyema  
BRIDGMAN E W and NORWOOD V Pulmonary Tuberculosis and Pregnancy

14

11

11

15

15

15

15

15

15

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

16

PFEIFFER D B and SMYTH C M JR An Ovarian Cyst Twisted on Its Pedicle with a Carcinoma of the Sigmoid Discovered Incidentally

28

### Liver, Gall Bladder, Pancreas and Spleen

VESELL H, and SHERWIN C P Testing of Liver Function Detoxication by the Liver  
RICHTER H M Cholecystography  
LEVY L and AARON A H Cholecystography by the Oral Method  
GRAHAM C A COLE W H COPER G H and MOORE S Simultaneous Cholecystography and Tests of Hepatic and Renal Functions by a Single New Substance Sodium Phenoltetra Iodophthalate Preliminary Report  
HABBE C and SMITH L A Unusual Bile Duct Visualization by Roentgenograms of Barium Meal Report of a Case  
CLISHING E H and STOUT A P Gaucher's Disease with the Report of a Case Showing Bone Disintegration and Joint Involvement

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

21

### Esophagus and Mediastinum

KEY E Obstruction of the Esophagus by a Calcified Intrathoracic Gland

## SURGERY OF THE ABDOMEN

### Abdominal Wall and Peritoneum

GRAY H T The Role of the Mesentery in Visceral Disorders

17

### Gastro Intestinal Tract

BADYLKES S Experimental Thyrotoxicosis The Thyroid and Its Influence on Gastric Secretion  
LEWALD L T Roentgen Diagnosis of Syphilis of the Stomach  
LENK R Ulcer Therapy as Tried on Niche Ulcers  
CARMAN R D The Roentgenological Diagnosis of Peptic Ulcer  
CAYLOR H D The Healing of the Gastric Ulcer in Man  
PASMAN R E The Surgery of Gastrocolic Fistula Following Gastro Enterostomy  
HORSLEY J S Partial Gastrectomy Its Indications Prophylaxis and Technique  
PORTIS S A and PORTIS B The Effects of Subtotal Gastrectomy on Secretion  
BARCOCK W W A Method of Partial Gastrectomy with Telecopic Anastomosis  
ROSS J W Hypertonic Saline Solution in Adynamic Ileus  
MEYER W The Duodenal Tube in the Postoperative Treatment of Gastro Enterostomy  
LOCKHART MUNIERY J P Diverticulitis and Its Surgical Treatment  
COFFEY R C Colonic Polyposis with Engrafted Malignancy  
MAYO C H and HENDRICKS W A Carcinoma of the Right Segment of the Colon  
DZIALOSWYNSKI A Gangrene of the Transverse Colon First Report of a Cured Case

17

17

17

17

17

17

17

17

17

17

17

17

17

17

17

17

17

17

17

17

17

## GYNECOLOGY

### Uterus

CLARK J G and FERGUSON L K A Cystogram Study of Cystocele and Prolapsus  
GAENSSLE H The Results of Operation for Prolapse  
VIOLET and MICHON Adenomyomata of the Uterus and Ovaries  
VON KUETTNER O Sarcomatous Degeneration of Uterine Myomata  
WALTHER H W E and PEACOCK C L Gonococcal Endocervicitis  
BECKER C Carcinomatous Degeneration of Heterotopic Epithelial Inclusions in the Uterus  
CLARK J G and KEENE F E The Treatment of Carcinoma of the Cervix by Irradiation  
PETIT and MARION Accidental Section of the Ureter During Hysterectomy for a Large Fibroid in the Right Broad Ligament End to End Suture Over a Ureteral Sound Abdominal Drainage Result After Twenty Months

25

25

25

25

25

25

25

25

25

25

25

25

25

25

25

25

25

25

25

25

### Adnexal and Penetrine Conditions

SHAW W The Fate of the Graafian Follicle in the Human Ovary  
SOFMARU Intraperitoneal Hemorrhage from the Rupture of a Lutein Cyst of the Ovary  
HITZANDIDES E Rupture of a Corpus Luteum Cyst Simulating the Rupture of an Ectopic Pregnancy  
PFEIFFER D B and SMYTH C M JR An Ovarian Cyst Twisted on Its Pedicle with a Carcinoma of the Sigmoid Discovered Incidentally

27

27

27

27

27

27

27

## OBSTETRICS

## Pregnancy and Its Complications

- FALLS, F H The Use of the Vaginal Stethoscope in the Early Diagnosis of Pregnancy
- BRIDGMAN E W, and NORWOOD V Pulmonary Tuberculosis and Pregnancy
- HEYNEMANN T The Differential Diagnosis Between the Kidney of Pregnancy and Chronic Nephritis in Pregnancy and Between Eclampsia and True Uremia
- ROCKWOOD, R, MUSSEY R D and KEITH N M A Clinical Study of Nephritis in Cases of Pregnancy
- BRANNAN, D and COHEN, M Necrosis of the Corpus Luteum of Pregnancy
- STANDER, H J, and PECKHAM C H Basal Metabolism in the Toxemias of Pregnancy
- ALLEN, W M Interagglutination of Maternal and Fetal Blood in the Late Toxemias of Pregnancy
- IRWIN J C The Role of Cesarean Section in the Treatment of Eclampsia

## Labor and Its Complications

- LANKFORD B Preparation of the External Genitalia for Delivery with Iodine Alcohol A Report of 100 Cases So Treated with the Bacteriological Results
- KATZ H Difficulties in Labor in So-Called Partial Retroflexion of the Uterus and Their Management in Cases of Advanced Pregnancy
- STONE E L Dilatation of the Cervix Uteri by Means of the Hydrostatic Balloon
- KELLOGG F S The Treatment of Placenta Prævia Based on a Study of 303 Consecutive Cases at the Boston Lying In Hospital

## Puerperium and Its Complications

- COLEBROOK L, and FRY, R M Some Laboratory Investigations in Connection with Puerperal Fever
- PHILLIPS H J The Treatment of Puerperal Infection by Intra Uterine Injections of Glycérine

## Newborn

- FRIEDMAN E and CHAMBERLAIN R S Phrenic Nerve Injury in the Newborn

## GENITO URINARY SURGERY

## Adrenal, Kidney, and Ureter

- GRAHAM, E A COLE W H COPPER, G H, and MOORE S Simultaneous Cholecystography and Tests of Hepatic and Renal Functions by a Single New Substance, Sodium Phenoltetraiodophthalein Preliminary Report
- PETTIT and MARION Accidental Section of the Ureter During Hysterectomy for a Large Fibroid in the Right Broad Ligament End-to-End Suture Over a Ureteral Sound Abdominal Drainage Result After Twenty Months
- HEYNEMANN T The Differential Diagnosis Between the Kidney of Pregnancy and Chronic Nephritis in Pregnancy and Between Eclampsia and True Uremia

- ROCKWOOD R, MUSSEY R D, and KEITH, N M A Clinical Study of Nephritis in Cases of Pregnancy
- WESSON M B The Treatment of Traumatic Rupture of the Kidney
- HERMAN, L Pyelography in Renal Diagnosis
- WILLAN, R J A Clinical Lecture on Diagnosis by Pyelography
- HINMAN F, and MORISON D M Experimental Hydronephrosis, Arterial Changes in the Progressive Hydronephrosis of Rabbits with Complete Ureteral Obstruction
- HINMAN F, and VECCHI M Pyelovenous Back Flow the Fate of Phenolsulphonphthalein in a Normal Renal Pelvis with the Ureter Tied
- BIRD C E and MOISE T S Pyelovenous Back Flow
- SCHWARTZ J Polycystic Disease of the Kidneys—Report of Six Cases
- KILBANE E F Renal Sepsis Associated with Manic Depressive Insanity
- MEDLAR E M Renal Tuberculosis Clinical and Experimental
- KEYDEL K The Diagnosis and Differential Diagnosis of Kidney and Ureteral Stone
- HINMAN F The Indication of Nephrostomy Preliminary to Ureterorectoneostomy
- Bladder, Urethra, and Penis
- CLARK J G, and FERGUSON L K A Cystogram Study of Cystocele and Prolapsus
- ROSE D K Stages in the Formation of Bladder Diverticulum
- HIRSCH E W The Urethral Mucosa and Glands An Anatomical and Histological Study
- Genital Organs
- REINLE G G Prostatic Obstruction
- HUNT V C Hemostasis in Suprapubic Prostatectomy
- Miscellaneous
- QUINBY W C Conservatism in Surgery of the Urinary Tract
- SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS**
- Conditions of the Bones, Joints, Muscles, Tendons, Etc
- CUSHING, E H and STOUT A P Gaucher's Disease, with the Report of a Case Showing Bone Disintegration and Joint Involvement
- HALL F C Observations of a Medical Man in an Orthopedic Clinic
- DOUB H P, and DAVIDSON E C Roentgen Ray Examination of the Joints of Hemophiliacs
- BREZOVNIK V Experimental Studies on Free Joint Bodies
- LEHMANN J C Is It Possible for an Osteochondritic Joint Mouse to Become Healed into Place?
- SMITH A DEF The Pathology of Joint Tuberculosis in Its Earlier Stages
- KUETTNER H and HERTEL, E What is Known Regarding Ganglia



- BATSON O V and ZIMMERMAN M M The Experimental Production of Annular Ligaments as an Example of the Influence of Function upon the Differentiation of Connective Tissue 31
- ABOH F Trigger Finger and Stenosing Tendonitis of the Flexor Tendons of the Finger 45
- HANSON R On the Development of Spinal Vertebrae as Seen on Skiagrams from Late Fetal Life to the Age of Fourteen 45
- FREEDMAN A C An Anatomical Note on a Possible Source of Error in the X Ray Findings of the Normal Vertebral Column 46
- WENTWORTH E T Systematic Diagnosis in Backache 46
- CHASSARD Articular Lesions in Osteochondritis of the Hip 46
- YOUNT C C The Role of the Tensor Fasciae Femoris in Certain Deformities of the Lower Extremities 47
- Surgery of the Bones Joints Muscles Tendons Etc 47
- GALBRAITH J H The Prevention of Deformity 48
- DAVIS A G The Treatment and Correction of Spinal Deformity 48
- WILLARD DE F P The Correction of Deformities of the Lower Extremities 48
- YOUNT C C The Treatment of Deformities of the Upper Extremity 48
- WITTEA A Injuries of the Hands and Fingers 49
- HOWELL B W A New Operation for Opponens Paralysis of the Thumb 49
- SMITH PETERSEN M N and ROGERS W A An End Result Study of Arthrodesis of the Sacro-Iliac Joint for Arthritis—Traumatic and Non Traumatic 49
- LAVALLE C R Fifty Cases of Tuberculous Osteo-Arthritis—White Swelling of the Knee and Coxaalgia—Which Were Cured by Bone Grafting the Patient Remaining in Bed Only Twenty Five Days 49
- Fractures and Dislocations 49
- CURTILLET J and TILLIER R The Indications for the Pedicled Bone Graft and Its Advantages 50
- DOLLINGER J The Operative Reduction of Old Traumatic Dislocations of the Shoulder Elbow and Hip on the Basis of 20 Cases 50
- DESCOUTTES D and RICARD A The Treatment of Fractures of the Upper End of the Tibia 51
- CONY H R Fractures of the Os Calcis Diagnosis and Treatment 52
- SURGERY OF BLOOD AND LYMPH SYSTEMS**
- Blood Vessels
- WINSLOW N Periarial Sympathectomy 52
- SEBESTYEN G The Effect of Periarial Sympathectomy upon the Circulation of the Blood 53
- MACDOLGALL J G Arteriotomy for Embolus Obstructing the Circulation in an Extremity Illustrated by a Successful Case 53
- Blood Transfusion
- BERMAN L The Diagnostic Criteria of Chronic Parathyroid Insufficiency with Special Reference to the Phosphate Content of the Blood 7
- ALLEN W M Interagglutination of Maternal and Fetal Blood in the Late Toxemias of Pregnancy 31
- HERZOG F The Action of the Roentgen Ray on the Regeneration of Blood 53
- PERRY M C The Preservation of Blood for Transfusion 53
- COSTAIN W A Lymphatic Drainage 53
- VOORHOEVE N Malignant Lymphogranulomatosis 54
- SURGICAL TECHNIQUE**
- Operative Surgery and Technique Postoperative Treatment 46
- HENDON G A Venoclysis or Intravenous Nutrition 55
- Antiseptic Surgery Treatment of Wounds and Infections 47
- DESTEFANO F and VACCAREZZA P F The Treatment of Carbuncle in Man 55
- D'HARLE F An Attempt to Treat Bubonic Plague with the Bacteriophage 55
- Anæsthesia 48
- BABCOCK W W Demonstration of Spinal Anæsthesia 56
- BOROS J Cystic Purulent Cerebrospinal Meningitis Following Lumbar Anæsthesia Induced with Novocain 56
- PHYSICO-CHEMICAL METHODS IN SURGERY**
- Roentgenology 49
- LOREY The Value of Contrast Media in the Bronchi for the Demonstration of Bronchiectases 55
- ESCUDERO P TERRADA H M and GALLINO M M Visualization of Hepatobronchial Fistulae by Retrograde Filling with Iodized Oil 55
- LEWALD L T Roentgen Diagnosis of Syphilis of the Stomach 57
- CARMAN R D The Roentgenological Diagnosis of Peptic Ulcer 58
- PICHTER H M Cholecystography 22
- LEVY L and AARON A H Cholecystography by the Oral Method 22
- GRAHAM E A COLE W H COPPER G H and MOORE S Simultaneous Cholecystography and Tests of Hepatic and Renal Functions by a Single New Substance Sodium Phenoltetraiodophthalate Preliminary Report 22
- HABBE E and SMITH L A Unusual Bile Duct Visualization by Roentgenograms of Barium Meal Report of a Case 23
- CLARK J G and FERGUSON L K A Cystogram Study of Cystocele and Prolapsus 25
- HERMAN L Iyelography in Renal Diagnosis 35
- WILLAN R J A Clinical Lecture on Diagnosis by Pyelography 36
- DOUB H P and DAVIDSON E C Roentgen Ray Examination of the Joints of Hemophilics 43
- HANSON R On the Development of Spinal Vertebrae as Seen on Skiagrams from Late Fetal Life to the Age of Fourteen 46
- FREEDMAN A C An Anatomical Note on a Possible Source of Error in the X Ray Findings of the Normal Vertebral Column 46

- HERZOG, F The Action of the Roentgen Ray on the Regeneration of Blood  
 SICARD J A, and FORESTIER J The Present Status of Roentgenological Examination with Lapiodol

### Radium

- CLARK, J G, and KEENE, F E The Treatment of Carcinoma of the Cervix by Irradiation

### Miscellaneous

- MILLER J W The Treatment of Laryngeal Tuberculosis with the Goerz Wessely Lamp  
 KIME J W Heliotherapy in Tuberculosis and a New Instrument for Its Use  
 CLARK W L Electrothermic Methods in the Treatment of Neoplastic and Allied Diseases

### MISCELLANEOUS

- |    |   |    |
|----|---|----|
| 53 | Clinical Entities—General Physiological Conditions  |    |
| 57 | SHIBLEY, G S, HANGER, F M and DOCHT, A R<br>Studies on the Common Cold I Observations of the Normal Bacterial Flora of the Nose and Throat with Variations Occurring During Colds | 4  |
|    | BERRY SIR J Some Clinical Aspects of Simple Goiter with Remarks on Its Causation  | 6  |
| 56 | HIRSCH E W The Urethral Mucosa and Glands An Anatomical and Histological Study  | 39 |
|    | BRANNAN, D Chloroma The Recent Literature and a Case Report   | 59 |
|    | COCHRANE R C Notes on the Treatment of Surgical Complications of Diabetes Mellitus  | 59 |
| 8  |   |    |
|    | General Bacterial, Protozoan, and Parasitic Infections  |    |
| 57 | PELOUZE, P S, and VITERI, L E A New Medium for Gonococcus Culture   | 60 |
| 57 |   |    |

## BIBLIOGRAPHY

## Surgery of the Head and Neck

Head  
 Eye  
 Ear  
 Nose and Sinuses  
 Mouth  
 Pharynx  
 Neck

## Surgery of the Nervous System

Brain and Its Coverings Cranial Nerves  
 Spinal Cord and Its Coverings  
 Peripheral Nerves  
 Sympathetic Nerves  
 Miscellaneous

## Surgery of the Chest

Chest Wall and Breast  
 Trachea Lungs and Pleura  
 Heart and Pericardium  
 Esophagus and Mediastinum  
 Miscellaneous

## Surgery of the Abdomen

Abdominal Wall and Peritoneum  
 Gastro-Intestinal Tract  
 Liver Gall Bladder Pancreas and Spleen  
 Miscellaneous

## Gynecology

Uterus  
 Adnexal and Peruterine Conditions  
 External Genitalia  
 Miscellaneous

## Obstetrics

Pregnancy and Its Complications  
 Labor and Its Complications  
 Puerperium and Its Complications  
 Newborn  
 Miscellaneous

## Genito-Urinary Surgery

61 Adrenal Kidney and Ureter 77  
 61 Bladder Urethra and Penis 78  
 62 Genital Organs 79  
 62 Miscellaneous 79

## Surgery of the Bones Joints, Muscles Tendons

Conditions of the Bones Joints Muscles Tendons 80  
 Surgery of the Bones Joints Muscles Tendons 81  
 Fractures and Dislocations 81

## Surgery of the Blood and Lymph Systems

Blood Vessels 81  
 Blood Transfusion 83  
 Lymph Vessels and Glands 83

## Surgical Technique

67 Operative Surgery and Technique Postoperative 83  
 Treatment  
 67 Antiseptic Surgery Treatment of Wounds and In- 84  
 fections  
 68 Anesthesia 84  
 71

## Physicochemical Methods in Surgery

72 Roentgenology 84  
 73 Radium 84  
 73 Miscellaneous 85  
 74

## Miscellaneous

74 Clinical Entities—General Physiological Conditions 85  
 76 General Bacterial Protozoan and Parasitic Infec- 86  
 tions  
 77 Ductless Glands 86  
 77 Experimental Surgery 86

## AUTHORS

## OF THE ARTICLES ABSTRACTED IN THIS NUMBER

- Aaron, A H, 2  
 Adam, J, 15  
 Allen W M 31  
 Babcock W W, 19 56  
 Badykes S, 6  
 Batson, O V 45  
 Becker C, 26  
 Berman L 7  
 Berry, Sir J, 6  
 Bird C E, 37  
 Blair V P, 1  
 Boldero H C A 16  
 Boros J, 56  
 Brannan D 30 59  
 Brezovnik V, 43  
 Bridgman, E W 29  
 Bunts, F E, 14  
 Carman R D 18  
 Caylor, H D 18  
 Chamberlain R S 34  
 Chassard 47  
 Clark, J G 25 26  
 Clark, W L, 57  
 Cochrane R C 59  
 Coffey, R C 0  
 Cohen M 30  
 Cole W H 2  
 Colebrook, L, 33  
 Conn H R 5  
 Conway J A, 9  
 Copher G H 22  
 Costain, W A 53  
 Curtlett J 50  
 Cushing L H 73  
 Davidson E C 43  
 Davies, H M 11  
 Davis A G 48  
 Desgouttes, D 52  
 Destéfano, F 53  
 D Hérelle, F, 55  
 Dinsmore R S 6  
 Dochez, A R, 4  
 Dollinger, J, 51  
 Doub, H P 43  
 Działoszyński A 21  
 Escudero P 15  
 Falls F H, 9  
 Felberbaum D 6  
 Ferguson L K 25  
 Finesilver B 6  
 Fischer W 14  
 Fitzgerald, R R 7  
 Forester J, 57  
 Freedman A C, 46  
 Friedman E 34  
 Fry R M 33  
 Gaenssle H 25  
 Galbruth J H 48  
 Gallino, M M 15  
 Geiger H, 7  
 Gilman, P K 7  
 Graham E A 22  
 Gray, H T 17  
 Guthrie D, 4  
 Habbe E 23  
 Hall F C, 43  
 Hanger, F M 4  
 Hanson R 46  
 Hendon, G A, 55  
 Hendricks W A 20  
 Herman L, 35  
 Hertel, E, 44  
 Herzog F 53  
 Heynemann T 30  
 Hinman, F 36 39  
 Hirsch E W, 39  
 Hitzandes E 27  
 Horsley, J S, 10  
 Howell B W 49  
 Hunt V C 41  
 Irwin, J C, 31  
 Jackson C 8 15  
 Katz H 32  
 Kay, W E, 7  
 Keen J A 4  
 Keene F E 26  
 Keith N M 30  
 Kellogg F S 3  
 Key E 16  
 Keydel K 39  
 Kilbane E I 37  
 Kume, J W 57  
 Kroh T, 45  
 Kuettner, H, 44  
 Linkford B 31  
 Laval, C R, 50  
 Lehmann J C, 44  
 Lenk R, 17  
 Levin L 2  
 LeWald L T, 17  
 Lockhart Mummery J P, 20  
 Loeb C, 3  
 Lorey 15  
 MacDougall J G 53  
 Marion 27  
 Mayo C H, 20  
 Medlar E M 38  
 Meyer, W, 20  
 Michon 5  
 Miller J W 8  
 Mori e T S 37  
 Moore S 22  
 Morrison D M 36  
 Mussey R D, 30  
 Neuhof H 4  
 Norwood 29  
 Obarrio P 2  
 Pasman K E 18  
 Peacock C L 26  
 Peckham C H 31  
 Pelouze P S 60  
 Perry M C 53  
 Petit 27  
 Pfeiffer D B 8  
 Phillips H J 33  
 Portis B 19  
 Portis S A 19  
 Quinby W C 41  
 Read J M, 6  
 Reinle G G 40  
 Ricard A, 52  
 Richter H M 2  
 Rockwood R 30  
 Rogers W A 49  
 Rose D K 39  
 Ross J W 19  
 Rutherford, C W 4  
 Sachs, E, 10  
 Schwartz J, 37  
 Sebestyén G 13  
 Shaw, W 27  
 Sherwin, C P 21  
 Shibley, G S, 4  
 Sicard, J A 57  
 Singleton A O, 10  
 Smith A Del, 44  
 Smith L A, 23  
 Smith Petersen M N, 49  
 Smyth, C M, Jr 28  
 Soimaru 7  
 Spencer, M D 23  
 Stander H J 31  
 Stetten DeW 11  
 Stone, E L 32  
 Stout, A P 23  
 Taylor A S, 9  
 Terrada H M 15  
 Thearle W H, 11  
 Tillier R 50  
 Towne, L B, 9  
 Trotter W, 5  
 Unger A S 23  
 Vaccarezza R F 55  
 Van Gilse P H G, 5  
 Veckl M 36  
 Vesell H, 21  
 Violet, 25  
 Viten L E, 60  
 Von Kuettner O, 6  
 Voorhoeve N 54  
 Walther, H W E, 6  
 Wentworth E T, 46  
 Wesson, M B 35  
 Whitby L L H, 16  
 Willan, K J 36  
 Willard DeF P, 48  
 Winslow N 12  
 Wittke A 49  
 Yount C C, 47 48  
 Ziegler, S L 3  
 Zininger, M M, 4,

## EDITOR'S COMMENT

THE constantly increasing importance from a diagnostic standpoint of roentgenological methods of examination particularly in conjunction with the injection or administration of opaque substances is one of the most interesting developments of contemporary medicine. Roentgenological visualization of the alimentary tract, the urinary tract and the gall bladder has been achieved and accepted as an important and essential aid in diagnosis. Visualization of the cerebral ventricles and the subarachnoid space with the aid of air injection has at times proven of diagnostic value when localizing signs of pathological lesions have been absent. The injection of air into the peritoneal cavity or the recognition of an accumulation of gas outside the abdominal viscera occasionally is of very great diagnostic importance.

In the demonstration of the bronchial tree of the spinal subarachnoid space and still more recently of the uterine cavity, the use of iodized oil has attracted considerable comment in past months particularly in France. A review of some of the indications and results of the use of lipiodol by Sicard and Forestier appears on page 57. Lorey (p. 15) reports twelve cases in which iodized oil was used in the demonstration of bronchiectases and Escudero and his associates (p. 15) the visualization of hepatobronchial fistulae with iodized oil. Clark and Ferguson's comment on the value of roentgen demonstration of the opaque bladder in cases of cystocele and prolapse of the uterus (p. 25) indicates the possibility of determining with some degree of exactness the results of surgical procedures designed to correct these conditions.

With reference to cholecystography, the suggestion of Graham and his associates (p. 22) that it may be possible with the injection of a single substance to determine kidney and liver function and render the gall bladder opaque to the X ray, and Richter's warning that the absence of signs of gall bladder pathology in X ray examination should not be permitted to outweigh clinical symptoms of disease (p. 22) deserve attention.

A number of particularly interesting abstracts relating to various phases of neurological surgery will be found in this month's issue of the Abstract. Singleton's paper on the recognition and treatment of glossopharyngeal neuralgia (p. 10), Taylor's suggestion as to the possibility of preserving the ophthalmic division of the fifth nerve in dividing its sensory root (p. 9), Davies' discussion of the indications, technique and results of phrenic evulsion in the treatment of pulmonary tuberculosis and bronchiectasis (p. 11) and Thearle's report of sixty-two cases of radical phrenicotomy for pulmonary tuberculosis (p. 11), touch important problems in neurological surgery.

Kellogg's conclusions as to the treatment of placenta previa based on 303 cases from the obstetrical service of the Boston City Hospital (p. 32), Colebrook and Fry's report of some laboratory investigations in connection with puerperal fever (p. 33), Medlar's study of twenty-six cases of early renal tuberculosis (p. 38), Hunt's careful description of the technique of hemostasis in suprapubic prostatectomy (p. 41) and Wittek's discussion of the treatment of injuries of the hand and fingers (p. 49) are only a few of many abstracts on subjects of very practical importance appearing in this month's issue.

# INTERNATIONAL ABSTRACT OF SURGERY

JULY, 1926

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Blair V P. Notes on the Operative Correction of Facial Palsy. *South M J*, 1926 xix, 116

Simple nerve suture is seldom a practicable procedure in facial palsy because of the short course of the main trunk of the nerve in the soft tissues and the small diameter of its branches. Complete transverse injury proximal to the pes anserinus is preferably treated by anastomosis with the spinal accessory or the hypoglossal nerve. Palsy of the twelfth nerve is very crippling to singers and speakers, and paralysis of the eleventh to laborers. Although successful innervation may follow anastomosis with part of the donor nerve trunk or implantation of the facial into the donor nerve, most surgeons prefer to use the entire donor nerve. Although not originating as finely differentiated movements as the hypoglossal nerve, the spinal accessory can give worth while innervation to the facial muscles. The objectionable movements can be largely overcome by exercises before a mirror.

The most noticeable feature of long established Bell's palsy is lateral displacement of the mouth to the opposite side which is most evident in smiling and laughing. Most of the innervation of a nerve anastomosis is obtained in from six to twelve months, but learning to use this innervation to the best advantage requires much longer.

Transplantation of innervated muscles for Bell's palsy has not been tried by the author.

Mechanical fixation is accomplished by (1) shortening the stretched tissue on the paralyzed side, or (2) obtaining fixation by the implantation of live strands of autogenous fascia lata strips. The first method is used chiefly after excision of the parotid gland and its contained nerve and is done at the time of the excision. Fascial strip fixation is of more exact application and is used alone or with nerve suture. This operation, if done shortly after a nerve anastomosis, greatly lessens worry and uncertainty during the period of nerve regeneration decreases

the load on the newly and often partly innervated muscles, and limits the overstretching of the paralyzed muscles.

The fascia loops that are substituted for the orbicularis oris and the buccinator muscles should firmly engage the fibers of the unparalyzed half of the orbicularis muscle in both the upper and lower lips and should be fixed laterally in the fascia in front of the ear. The fascia is inserted as shown in the illustration.

A specially devised trocar needle (the Reverdin needle is too short, a simple large eyed needle on a handle prolongs the operation and increases the chance of fascia contamination) enters a small skin incision near the ear engages the temporal fascia or tissue over the parotid traverses the cheek and emerges at the mesial end of the future loop. One end of the fascial strand is locked in the needle and the needle withdrawn, an inch or so of the strip being left to protrude at the mesial needle puncture.

The strip is then disengaged and the needle re-introduced into the original skin opening near the ear, brought through the cheek by a different route, and brought out at the previous mesial opening where the protruding fascial end is grasped and drawn back through the tissues. The two free ends, which then emerge at the same incision near the ear are tightened to produce the proper amount of fixation, this being tested by relaxing the pull after the application of a Halsted clamp to the fascial loop ends.

When the correct length has been determined, the ends are sutured together with fine silk and buried in the tissues. As in the other types of fascia suture, each stitch engages only a part of the thickness of the strand. The fascial loops should be sufficiently short to cause quite noticeable overcorrection.

Immediately after closure of the wound the strain is taken off the newly implanted fascia by maintaining the face in an overcorrected position by means of one layer of gauze applied with flexible collodion. A marine sponge pressure dressing is used for two weeks.

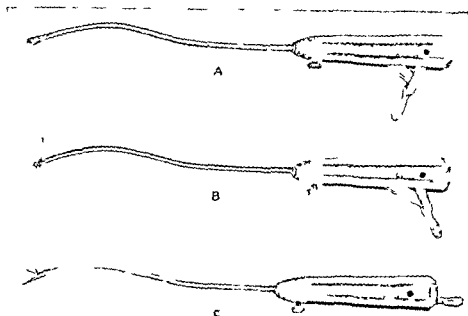


Fig. 1. Tschernig-Buehl needle in implanting the fascial strips. A position with the hook on the strip centrally ready to grasp the fascial strip. B the hook partially withdrawn into the trocar the fascial strip within its grasp. C the position of the trocar while the needle is being inserted & withdrawn.

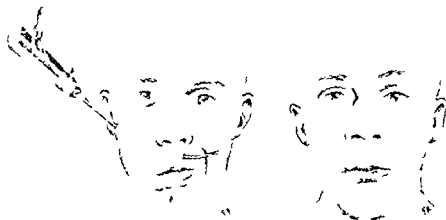


Fig. 2. A the manner of using the needle. B the fascial strip in place.

Infection, excessive hemorrhage and the use of a homograft have been causes of failure. The author prefers silk as a substitute for any live autogenous tissue but is prejudiced against all foreign implants such as preserved tendon and kangaroo tendon.

If partial paralysis from section of the inframaxillary branch during a drainage incision or the removal of the submaxillary lymph glands requires correction the author prefers fascial fixation of the injured side to paralysis of the opponent muscles.

WALTER C. BURKET, M.D.

#### EYE

Obarrio, P. The Mechanism of Accommodation Confirmed by Experimental Data. *Am. J. Ophthalm.* 1926 3: 15-20.

The author gives the Helmholtz and Tscherning theories of the mechanism of accommodation and summarizes the evidence in favor of the Tscherning theory as follows:

1. Experimental data reveal that the contraction of the ciliary muscle enlarges the ciliary opening,

producing tens on instead of relaxation of the suspensory ligament

2 When the lens is removed from the young eye and allowed to assume the form given it by its own elasticity its shape becomes more or less globular or spheroidal which is not the shape that it assumes during the act of accommodation

3 Repeated measurements of the displacement of reflected images demonstrate that during accommodation the surface of the lens has a considerably greater curvature in the center than at the periphery

The trembling or jumping motion of the images during accommodation is due to the vibratory action of all of the voluntary muscles, which is imparted to the lens through the ligaments

5 The amplitude of accommodation diminishes toward the periphery of the pupil and the contraction of the longitudinal fibers of the ciliary muscle exerts traction on the choroid, tending to give further support and consistency to the vitreous which in turn steadies the posterior surface of the lens

6 Because of its extreme tenacity and elasticity and its dome shape, the posterior capsule cannot be cut in the middle, but toward the periphery where the cortex of the lens is considerably softer, it yields to the action of the suspensory ligament

7 The increase in thickness of the lens during accommodation is due to the double pressure exerted upon the softer cortex by the vitreous acting on the posterior surface and the ligament acting laterally these forces causing a displacement of this outer mass toward the point of least resistance—the anterior capsule

8 The descent of the image of the posterior capsule during an extreme effort of accommodation is due possibly to a very slight tilting of the lens in its horizontal axis and probably also to slight motion of the eye itself

9 It must be borne in mind that during consciousness all involuntary muscles maintain a state of tone and that therefore the ligament at all times exerts a slight tension due to the tone of the ciliary muscle and the elasticity of the lens capsule, principally the posterior capsule

10 All of these facts are possible because of the action of Schlemm's canal as a safety valve in the anterior chamber

ARTHUR H. PEMBER, M.D.

Ziegler S. L. The Surgery of Trachoma Practical Problems *J Am M Ass* 19 6 1333-399

Ziegler reviews the lesions that cause the persistence of trachoma and describes the operative treatment. The chief factors in this pathogenic dysfunction are two mechanical processes (1) lid friction from blepharophimosis and trichiasis and (2) lachrymal maceration from the perversion of tears and obstruction of the ducts by trachomatous invasion.

Blepharophimosis is caused by the acute swelling engendered by the hypertrophied papillae, the gelatinoid granulations and the engorged mucosa. In the later stages cicatricial contraction of the con-

junctiva, tarsal cartilage and total lid structure adds to the complications. The ensuing entropion with trichiasis and the consequent lid friction finally result in multiple ulcers or in pannus limited to the area of pressure contact. These corneal lesions will disappear when the lid tension is properly relieved.

Lachrymal obstruction causes simple epiphora or the regurgitation of septic secretions. To this may be added the infectious conjunctival discharge and the hypersecretion of tears from the lachrymal gland. This excess of moisture stimulates the growth of polypoid granulations on the conjunctival surface and adds to the maceration that generally follows the corneal erosion caused by lid friction. This lachrymal secretion often causes the failure of an operation that would have been successful if the lachrymal lesions had been eliminated.

Accordingly the practical problems in the surgery of trachoma narrow down to the correction of lid friction and lachrymal maceration.

Under the heading 'Conservative Surgery of Trachoma' Ziegler describes Knapp's roller operation, freezing with carbon dioxide snow, canthotomy, canthoplasty, rapid dilatation of the lachrymal canal, galvanocautery, puncture for entropion and trichiasis and galvanocautery, pentomy for pannus.

In discussing canthotomy he states that the best procedure for relieving the lid tension is cantholysis or section of the superior canthal ligament. With regard to canthoplasty he says that von Ammon's technique is the one usually employed but that Agnew's addition of cantholysis improves its results.

Of the radical surgical procedures he recommends for milder cases von Burow's operation for splitting the tarsal cartilage. In extremely chronic cases the Kubnt-Helrath excision of the tarsal cartilage is necessary. Whichever one of these operations is decided upon it should be preceded or supplemented by canthotomy, galvanocautery, puncture and rapid dilatation of the lachrymal canal.

L. L. McCoy, M.D.

Loeb C. Choked Disk and Vitreous Opacities Following Fracture of Skull *Am J Ophth* 19 6 3 184

Following fractures of the skull choked disk is not uncommon retinal hemorrhages are rarer and vitreous opacities are very unusual. Under these conditions choked disk may not be the result of increased intracranial pressure but due to hemorrhage into the nerve sheath.

A man 32 years old sustained a fracture of the skull. At examination several weeks later the eyes appeared normal externally but the vitreous of both eyes was cloudy, a large blood clot was found in the vitreous, and detachment of the retina was suggested. The disks were in the stage of receding papilledema. Several months later the vision of the right eye was normal with the proper correction. One large opacity in the left vitreous prevented a good view of the fundus and caused a diminution of vision.

ABIGAIL WESCOTT, M.D.



Rutherford C W Some Essentials of Glioma of the Retina *Am J Ophth* 1926 35 iv 171

Rutherford reports the case of a child 3 1/2 months old whose parents had noted a peculiar appearance in its right pupil. The general examination and history were negative. The right eye was blind. The pupil was larger and reacted more sluggishly than the left. Behind the right lens was a yellowish rounded mass occupying the entire vitreous chamber. The diagnosis was glioma of the retina. The eye was enucleated before extra ocular extension or metastasis had occurred. The microscope revealed all the essential characteristics of a glioma of the retina.

VIRGIN WESCOTT M D

## EAR

Guthrie D The Prognosis of Middle Ear Suppuration in Children *Edinburgh M J* 1926 xxxix Med Chir Soc Edinburgh 49

Middle ear suppuration is often regarded as a trivial ailment but is a disease of considerable importance as it is a direct cause of ill health and deafness and may even prove fatal. At autopsy it has been found in as many as 80 per cent of infants under 1 year of

In the vast majority of cases a common cold is

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children between the ages of 7 and 16 years. The tests used were the conversational voice and watch tests. Both were used before operation and repeated after the cavity had been dry and healed for a year.

Keen found that the hearing which remains is in dependent of the duration of the middle ear suppuration provided bone conduction is good. The findings at operation have no relationship to the final hearing except when cholesteatomata are present when hearing tends to be poor. The most favorable operation cavity from the standpoint of hearing is the large dry cavity lined by a thin epithelium. The poorest is the mucous membrane type.

Of Keen's patients one third had better hearing and two thirds had poorer hearing one year after the operation. The result was somewhat dependent upon whether the ear was used or not. A new theory is needed to explain sound conduction in the absence of the drum and ossicles after a radical mastoidectomy. According to Zimmermann's theory which appears to be the most logical sound waves reach the cochlea by way of the promontory, the basilar membrane being thus set in motion without the intermediary of the labyrinthine fluid. The ear is probably unique in its power of adaptation since after sound waves reach the cochlea by other ways these unusual channels have developed so strikingly that the hearing is excellent.

GEORGE R McCLURE M D

## NOSE AND SINUSES

Shibley G S Hanger F M and Dochez A R Studies on the Common Cold. I. Observations of the Normal Bacterial Flora of the Nose and Throat with Variations Occurring During Colds *J Exper Med* 1926 xliii 415

The studies reported in this article were under taken to obtain an acceptable explanation of the causation of the common cold.

The methods employed in the investigation are described and the findings given in tabular form.

Cultures of the nose and throat of normal persons were compared with cultures made during colds and the incidence of certain organisms was noted.

The normal basic nasal flora includes staphylococcus albus diphtheroids and in certain persons staphylococcus aureus and citreus. Occasional transient bacteria are Gram negative cocci and non haemolytic streptococci.

The normal basic throat flora includes Gram negative cocci non haemolytic streptococci and in certain persons large Gram positive cocci bacillus influenzae bacillus and diphtheroids. Transient organisms are staphylococcus albus haemolytic streptococci staphylococcus aureus and citreus and pneumococci.

In the early stages of colds the cultures showed no bacteria to which a rôle in the causation of the cold could be assigned but the basic flora of the nose was and the throat showed a reduction of

prominence or alterations in predominance of the basic flora

Organisms which were prominent in colds usually as late or secondary invaders, were staphylococcus aureus, hæmolytic streptococci, and bacillus in fluenzæ

There was a striking incidence of hæmolytic streptococci in throat infections

A R. HOLLENDER M D

Van Gilse P H G. Investigations on the Development of the Sphenoidal Sinus *J Laryngol & Otol* 1926 xli 137

The sphenoid sinus consists of two parts, the neo sinus and the part situated directly behind the anterior wall which the author has named the 'palaiosinus'. The palaiosinus develops very early in fetal life

The nose is formed by an ingrowth of epithelium from the surface into the mesenchyme and the resulting cavity becomes connected with the mouth through the primitive choanæ. The extension of the ingrowth beyond the posterior part of the primitive choanæ is the origin of the palaiosinus. In an embryo 50 mm in length the nasal cavity is enclosed in a cartilaginous capsule the posterior part of which becomes the sinus cupularis posterior or recessus. At a further stage the recessus ossifies, forming a bony capsule which surrounds the sinus on all sides. On the anterior wall of the recessus there then remains a narrow opening, the ostium of the later formed sphenoid sinus. Pneumatization begins only after the capsule and sphenoid have become fused.

In adult life the sphenoid always consists of two parts, the remains of the capsule and the true sinus. The pneumatization is performed by the subepithelial layer of mucous membrane covering the walls of the palaiosinus. When secondary pneumatization is incomplete, a sinus within the sinus may be formed. This is situated so laterally that it may be mistaken for an ethmoid cell.

Absence of the sinus is rare, and a double sinus can occur only with malformation of the nose. A double opening in a sinus is due to some pathological condition.

The cessation of pneumatization is due to the presence of softer material such as remnants of cartilage or connective tissue. Irregularities of the sinus may be due to retardation of pneumatization by abnormal conditions of the bone, irregularities in fusion of the different parts (ricketts) pathological conditions of the mucosa, or ozæna.

GEORGE R. McALIFF M D

## PHARYNX

Trotter W. The Surgery of Malignant Disease of the Pharynx *Brit M J* 1926 i 269

In the laryngopharynx carcinoma usually does not progress with great rapidity, especially if the path-

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## NECK

Berry Sir J Some Clinical Aspects of Simple Goiter with Remarks on Its Causation *Lancet* 19 6 cxx 269

Berry regards simple goiter not as a hypertrophy of the thyroid but as a degenerative process in which the colloid is increased and the cellular elements are decreased

He states that he does not believe that a lack of iodine is the causative factor in simple or endemic goiter since on numerous occasions when a new water supply was put in in a goiter district and tests showed no iodine in the water the incidence of goiter was reduced In one case the reduction was from 80 to 2.2 per cent

From his experience of thirty five years and visits to nearly every goiter section in Europe Berry concludes that at least in the vast majority of cases the disease is produced through the agency of drinking water He does not know what element in the water is responsible but states that practically all waters that produce goiter contain mineral matter of a calcareous nature *ARTHUR L. SHREFFLER M.D.*

Felberbaum D and Finesilver B Substernal Thyroid *Am J M Sc* 1926 clxxv 18

The authors call attention to the fact that the substernal thyroid is frequently overlooked In a series of 495 teleroentgenograms made in routine cardiovascular examinations six cases of substernal thyroid were found

The diagnosis is based upon (1) remote or toxic symptoms induced by hyperactivity of the gland or (2) pressure symptoms Fluoroscopic examination is of great aid in differentiating between an intra-thoracic goiter and a sacculated aneurism of the ascending arch of the aorta An intra-thoracic goiter lacks the expansile characteristics of an aneurism and moves with the trachea during respiration The condition is often symptomless and remains benign for many years

In two of the authors cases minute doses of thyroid caused great symptomatic improvement When symptoms of mediastinal compression are severe surgery or deep X-ray treatment may be considered *ARTHUR L. SHREFFLER M.D.*

Dinsmore R S Hyperthyroidism in Children *Surg Gynec & Obst* 1926 clxv 172

Hyperthyroidism in children is more common than has been supposed Its cause is unknown its onset abrupt and its course rapid No case of hyperthyroidism in a boy under 10 years of age has been reported In many cases of hyperthyroidism in children there is a history of goiter in other members of the family Klein reports three cases of hyperthyroidism following removal of the tonsils In only a few cases is there a history of a directly preceding infection In a small percentage the hyperthyroidism developed after iodine therapy but disappeared promptly when this treatment was discontinued

The condition is characterized by nervousness followed by enlargement of the thyroid gland tachycardia and exophthalmos Tremor was noted in twenty five of forty eight cases In sixteen there was a loss of weight The pulse averaged 125 and the maximum rate was 162 The basal metabolism rate in children with hyperthyroidism has not been definitely established

The treatment of hyperthyroidism in children does not differ essentially from that of hyperthyroidism in adults but the child is apt to be very ill after the operation Careful handling is essential as children with hyperthyroidism are always poor operative risks As a rule preliminary ligations of the arteries on separate days should be done three months before thyroidectomy The thyroid should be removed before focus of infection are attacked

*MARCUS H. HOBART M.D.*

Badylkes S Experimental Thyrotoxicosis The Thyroid and Its Influence on Gastric Secretion (Die experimentelle Thyrotoxicose die Schilddrüse und ihr Einfluss auf die Magensekretion) *Russkaja Klin* 1925 u 199

In order to study the influence of the thyroid on gastric secretion the author conducted investigations on nineteen normal males none of whom showed any disturbance of the endocrine glands or other internal organs and all of whom had a normal gastric secretion The comparative studies on the gastric secretion were made with the aid of a thin tube introduced before the thyroid preparation was given and again at the end of the experiment From nine to twenty four tablets of dried thyroid substance were given by mouth daily until pronounced symptoms of thyrotoxicosis were demonstrated especially on the part of the cardiovascular system The administration of the thyroid substance was then stopped

In most cases there was a diminution in the gastric secretion—a decrease in the acidity as well as in the quantity of the juice An increased secretion was found in only 27.5 per cent The gastric secretion was decreased in the patients who had received large doses of thyroid substance and had reacted strongly and was increased in those who reacted weakly Corresponding reports by other investigators writing on myxedema and Basedow's disease led the author to the conclusion that the secretion of the thyroid gland is necessary for gastric secretion In some persons small doses of thyroid substance increase the secretion whereas large doses diminish it *VOY ACHERMANOV (Z)*

Read J M The Prognosis in Exophthalmic Goiter *Am J M Sc* 1926 clxxv 227

Exophthalmic goiter occurs at all ages and in all parts of the world but its incidence seems to be greatest in goiter districts It is about nine times more common in females than in males It is prone to run a cyclic course with remissions and recurrences and has a tendency toward chronicity though it frequently ends in spontaneous recovery It pre-

sents atypical forms and is associated with an irreducible mortality. Its most constant feature is an increase in the basal metabolic rate.

Acute cases of exophthalmic goiter with a well defined onset offer a more favorable prognosis for recovery than those with an insidious onset and symptoms noted for several years before the patient seeks treatment. The height of the basal metabolic rate offers only slight assistance in the estimation of the prognosis. Males with exophthalmic goiter seem more resistant to treatment and are more apt to become chronic sufferers from the condition than females. Subtotal thyroidectomy nearly always produces a remission of the disease if the patient survives the operation but it does not constitute a cure.

ARTHUR L. SHREFFLER, M.D.

**Fitzgerald R. R. A Comparative Study of the Effect of Two Different Preparations of Iodine Upon the Pre-operative Basal Metabolic Rate in Exophthalmic Goiter.** *Canadian M. Ass. J.*, 1926, 21, 159.

The author reports a comparison of the action of Lugol's solution in lowering the pre-operative basal metabolic rate in exophthalmic goiter with that of resublimed iodine given in solution in dilute hydrochloric acid. It is well known that Lugol's solution in the pre-operative management of exophthalmic goiter shortens the period necessary for pre-operative rest, renders inoperable cases operable, and nearly eliminates the postoperative reaction.

Fitzgerald compared two series of cases which were as nearly as possible alike and were treated by one or the other method exclusively. In all of these cases the histopathological changes of exophthalmic goiter were found on microscopic examination of the thyroid tissue removed at operation. The basal metabolic rate was lowered in nearly every case, regardless of the kind of iodine used. This rate generally fell gradually to a minimum in from three to fourteen days and then rose slightly and remained approximately constant. The two methods of treatment produced practically the same decrease in the basal metabolic rate and in about the same length of time.

A minimum of Lugol's solution contains approximately 5.8 mgm. of available iodine and a minimum of dilute hydrochloric acid 6.6 mgm. of available iodine. It was found necessary to give nearly four times as much resublimed iodine as Lugol's solution to produce the same clinical result. CYRIL J. GLASPEL, M.D.

**Gilman P. K. and Kay W. E. Total Thyroidectomy in Thyrotoxicosis of the Exophthalmic Type. A Preliminary Report.** *Am. J. M. Sc.* 1926, 21, 239.

Gilman and Kay report ten cases of thyrotoxicosis of the exophthalmic type in which a total thyroidectomy was done. The safety of the parathyroids and recurrent laryngeal nerves being insured by shaving the posterior portion of each lateral lobe as close to the capsule as possible. They determined upon this

treatment because they believe that in this condition the entire gland is diseased and because they had noted that the postoperative reaction is inversely proportional to the amount of gland removed. It is not difficult to maintain a proper thyroid balance by the administration of a thyroid preparation.

Before the operation the patients were told that they would be obliged to take a certain amount of thyroid preparation daily for the remainder of their lives. No difficulty was experienced in obtaining their consent to the operation as all of them had been rendered invalids by the condition.

ARTHUR L. SHREFFLER, M.D.

**Geiger H. The Fate of the Blood Supply of the Thyroid After Thyroidectomy with Special Regard to the Formation of a New Thyroid Capsule.** (Ueber das Schicksal der Blutversorgung in Schilddrüsen nach Strumektomie nach Bemerkungen ueber die Bildung der neuen Schilddrüsenkapsel.) *Beitr. klin. Chir.* 1925, 20, 583.

To determine the fate of the blood supply in the remaining portion of the thyroid gland after partial thyroidectomy the ordinary methods of cadaver examination with injection of the vessels are not sufficient as they show nothing with regard to the formation of collateral vessels. The question as to what vessels are formed and what route is taken by the blood after ligation of the arteries can be answered only by studying the cadavers of persons subjected to thyroidectomy. The author studied four cases.

In the first case resection of the lower half of the right lobe of the thyroid had been done eight months previously. In the second, ligation of both inferior arteries, ligation of the anterior branch of the right superior artery, and resection of the right lobe of the thyroid had been done eight years previously. In the third ligation of the vessels of the right side had been followed by resection of the right lobe with division of the isthmus. In the fourth all of the vessels had been ligated on account of exophthalmic goiter nine years previously and the right lobe had been resected later because of recurrence. Death occurred the day after the resection.

The studies made by the author showed that after ligation of single arteries a collateral circulation is formed on the gland. After ligation of all four main arteries anastomoses are formed by both the pre-glandular and postglandular vessels. Following the ligation of all vessels and resection the retroglandular vessels form most of the collaterals because, in the operation, the short straight muscles of the neck are either divided or separated from the gland and therefore the delicate vessels are torn through while the posterior vessels are preserved. STAHL (Z).

**Berman L. The Diagnostic Criteria of Chronic Parathyroid Insufficiency with Special Reference to the Phosphate Content of the Blood.** *Am. J. M. Sc.* 1926, 21, 245.

Criteria of chronic parathyroid insufficiency are dystrophies of the hair, nails, teeth and skin, me

chemical hyperexcitability of the nerves as indicated by the Troussseau and Chvostek phenomena electrical hyperexcitability of the peripheral nerves a decrease of the calcium content of the blood and a decreased phosphate content in the urine with phosphate retention in the tissues and an increased phosphate content in the blood

The Troussseau phenomenon is produced by the application of a ligature firmly about the upper arm. The pressure should be sufficient to prevent perception of the pulse. The phenomenon consists in the assumption of the obstetrical hand after from three to five minutes on stroking of the palm.

The Chvostek phenomenon is the response to mechanical stimulation of the facial nerve at its point of emergence from the parotid gland as the pes anserinus.

ARTHUR L. SHREFFLER M.D.

Miller J. W. *The Treatment of Laryngeal Tuberculosis with the Goerz Wessely Lamp* *Med J & Rec* 1926 cxviii 166

Miller reports in some detail his observations of the use of the Wessely lamp in the treatment of tuberculosis of the larynx by Wessely of Vienna. The Wessely lamp is an acelight with carbon bars especially constructed and impregnated according to the Goerz system by which the greatest concentration of the rays is thrown to one side and made to converge into a cone through the medium of a

quartz optic. The heat rays are absorbed by a water jacket connected with the quartz optic.

In tuberculosis of the larynx the treatment is administered directly by means of the Sciffert universal laryngoscope or a metal laryngeal mirror. The period of treatment varies from a few weeks to one and one half years.

Miller is of the opinion that in laryngeal tuberculosis this form of treatment heals if it does not actually cure.

JAMES C. BRISWELL M.D.

Jackson C. *Blastomycosis of the Larynx* *Arch Otolaryngol* 1926 vii 92

Blastomycosis of the larynx is a rare disease but in Jackson's opinion may not be so rare as is suggested by the paucity of case reports and the failure of textbooks to mention it. Jackson reports one case and cites two others.

The initial symptoms are hoarseness, cough, dyspnea and dysphagia. A positive diagnosis is established only by the discovery of the blastomyces in smears of the sputum or secretions. The condition must be differentiated from laryngeal tuberculosis in which tubercle bacilli cannot be found.

In the treatment potassium iodide gives good results not only because of its effect on the blastomycotic lesions but also because of its selective action on the laryngeal mucosa.

(FORGE K. McALIFF M.D.)

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS, CRANIAL NERVES

Conway, J. A. Two Cases of Cerebral Aneurism Causing Ocular Symptoms, with Notes of Other Cases *Brit J Ophth*, 1926, x 78

In the diagnosis of cerebral symptoms the possibility that an aneurism of a cerebral vessel may be the cause is rarely taken into consideration. In some cases such an aneurism may give rise to no symptoms that can be recognized clinically and in many it causes death so suddenly that there is no opportunity for a study of the prodromal symptoms. Age gives no clue as to its probable presence or absence as it may occur at any age. There is no particular diathesis or constitutional state which favors its development, suggests it, or differentiates it from other cerebral neoplasms.

Osler found twelve cases of cerebral aneurism in 800 autopsies at the Montreal General Hospital, and Newton Pitts found nineteen in 9,000 inspections at Guy's Hospital, London. Bradford believes the condition is not uncommon, and Fearnside says "The presence of a saccular aneurism on one of the basal cerebral arteries at necropsy is one of the commonest pathological findings."

Conway found forty three cases of undoubted cerebral aneurism among 6,325 sections. Twenty-four of the subjects were males. The oldest was a man of 72 years and the youngest a young boy. Ten of the subjects were under 25 years of age. The great majority died from sudden apoplexy without any prodromal symptoms. Fifteen showed some warning cerebral symptoms, usually headache and vomiting, but in only seven of these fifteen did the symptoms precede death by more than a few days. With the exception of four, all died from rupture of the aneurism. Three died from rupture of another cerebral vessel and one from intracranial pressure. Many of the subjects showed ocular symptoms after the onset of cerebral hemorrhage. In no case was the presence of a cerebral aneurism suggested as a possible cause of death. A statement regarding the Wassermann reaction was made in only a very few of the case records. This is explained by the fact that the majority of the patients were admitted to the hospital in coma and soon died. In only a few of the records was there any mention of syphilis of the vessels. The vessel most frequently affected was a branch of the middle cerebral artery. Two vessels were affected in only two cases.

The author believes that cerebral aneurisms are of congenital origin. In twenty-five of his cases there was no sign of vascular or cardiac disease and no evidence of any other causal agent.

STANLEY J. SEEGER, M.D.

Towne E. B. Invasion of the Intracranial Venous Sinuses by Meningioma (Dural Endothelioma) *Ann Surg* 1926 lxxviii 321

Meningiomata (dural endotheliomata) are encapsulated non-metastasizing tumors which frequently invade the dura and the overlying skull and compress but do not invade the brain. When they are excised with the involved dura and skull they do not recur. The bone proliferation helps to localize a tumor over a silent area and is not a serious complication if the region is accessible to surgery.

Meningiomata arise from nests of arachnoid cells and often from those which accompany the arachnoid villi that pierce the dura and project into the venous sinuses. The author has been able to find in the literature only one case of tumor invasion of a vein—a case reported by Cushing. In Cushing's case the growth arose from the wall of the superior longitudinal sinus and invaded the vein without causing thrombosis. Towne reports two cases.

In Towne's first case there was a bilateral parasagittal meningioma which compressed the frontal lobe, proliferated in the overlying skull and invaded and occluded the superior longitudinal sinus. The tumor was removed in two stages. Death occurred three months later.

In the second case reported by Towne a meningioma of the falx cerebri invaded the inferior longitudinal sinus extended into the straight superior longitudinal and right and left lateral sinuses, the left internal jugular and innominate veins and the superior vena cava, invaded the perivascular tissues and caused sudden death. This case demonstrated that invasion of the venous system may convert a meningioma which is otherwise favorable for surgery into an irremovable tumor.

Towne concludes that an examination of the adjacent venous sinus is indicated in cases of tumors involving the dura. WALTER C. BURKET, M.D.

Taylor A. S. Partial Neurectomy of the Sensory Root of the Gasserian Ganglion in Trifacial Neuralgia with Preservation of Corneal Sensation *Ann Surg* 1926 lxxviii 196

Frazier estimates that a postoperative keratitis develops in greater or less degree in 10 per cent of all patients subjected to complete sensory root neurectomy and believes that in a certain additional percentage of cases corneal complications develop after the patient leaves the hospital. Among the causes of this serious complication are the frequent trauma to an insensitive cornea, the drying of the eye following loss of function of the lachrymal gland, "trophic" changes after injury to the ganglion or the ophthalmic nerve, the loss of the protection afforded by the upper lid in those occasional un-

explained cases of paralysis of the seventh nerve and disturbances of the little understood sympathetic innervation

The problem of preserving the cornea has been an especially acute one in the Peking Clinic China, because of the fact that many of the patients are poor and unable to carry out the directions given. Woods suggested that in suitable cases an attempt be made to divide the posterior root partially, severing only the fibers supplying the second and third division of the nerve and conserving at least a part of the bundle of fibers which make up the first division. He called attention to the fact that in every large nerve the component fasciculi occupy definite positions in the nerve trunk and that the fibers in the posterior root of the trigeminal supplying each main division of the nerve always lie in fixed positions, those supplying the first division of the nerve being above and medial, those to the second branch next lower, and those to the third branch lowest and most lateral.

The procedure suggested by Woods was carried out by Taylor in three cases in Peking before Frazer's reports were first seen by him. Frazer in a personal communication to the author mentions unpublished work on the embryology of the nerve which shows that the first division develops as a separate nerve. The results of subtotal division of the posterior root of the ganglion indicate that the function of the ophthalmic division may be retained after permanent destruction of the second and third branches.

In the author's three cases the neuralgia was most pronounced in the maxillary nerve. In addition to subtotal division of the posterior root the second division was divided distal to the ganglion.

STANLEY J. SEEGER M.D.

#### Sachs E. The Radical Treatment of Trigeminal Neuralgia. *J. Missouri State M. L.* 1926 XLIII 43

Sachs uses one of two methods of treatment in trigeminal neuralgia, either alcohol injection or radical operation on the posterior root of the ganglion. He states that peripheral extractions of the nerve are disfiguring and only palliative and often do not afford nearly as much or as enduring relief as the alcohol injections. When only one branch of the nerve is involved an alcohol injection should usually be tried first. As the result of a satisfactory injection the area supplied by the nerve injected becomes numb. This numbness is the same though not as extensive as the anesthesia produced by a ganglion operation. In only one or two instances has an alcohol injection given permanent relief as a rule the pain returns within from one to two years.

Sachs believes that the attempt to save the fibers of the ophthalmic division to avoid anesthesia of the cornea is a very questionable procedure not only because some of the fibers of the second division may be left uncut but also because pain may develop in the first branch when the two others have been destroyed. Four of his patients developed

facial paralysis after division of the posterior root of the fifth nerve. Although they all recovered from the paralysis, the eye on the affected side was endangered.

Following complete division of the posterior root pain temperature and touch perception is lost but this loss does not extend over the entire area supplied by the fifth nerve because, as there is considerable overlapping by the cervical nerves, sensation in the middle of the cheek remains quite normal. In some of his earlier cases Sachs was disturbed by this fact believing it to indicate that he had left some of the third division fibers. In six cases he therefore reoperated but in every instance found that he had cut all of the fibers. Even when pain temperature and touch perception is lost the deep pressure sense remains in the area supplied by the fifth nerve. This form of sensation is carried through the seventh nerve which is of course undisturbed by the operation. Sachs has performed seventy one operations for division of the posterior root of the gasserian ganglion in sixty five patients, with no deaths.

He does not believe that there is any advantage in the use of local anesthesia in these cases.

STANLEY J. SEEGER M.D.

#### Singleton A. O. Glossopharyngeal Neuralgia and Its Surgical Relief. *Ann. Surg.* 1926 LXXIII 335

Glossopharyngeal neuralgia is so similar to trigeminal neuralgia in the character of the pain and the duration of and interval between the attacks that most cases are treated with alcoholic injections of the gasserian ganglion or even section of the posterior root of the ganglion before suspicion as to the true nature of the condition is aroused by the failure of these measures to give relief. In Singleton's opinion this error is due to the failure of textbooks to mention glossopharyngeal neuralgia and the fact that only twenty one cases have been reported in the literature.

The pain of glossopharyngeal neuralgia is distributed to the tonsillar region, oral pharynx and ear, with a trigger zone in the tonsillar fossa. The attacks of pain occur chiefly in the region of the tonsil and pharynx radiate to the ear on the same side and are proximal and very severe. The pain is induced by swallowing or stimulating the pharynx but not by rubbing the face (fifth nerve).

The injection of alcohol cannot be considered in the treatment of glossopharyngeal neuralgia because of the close proximity of the vagus and the large blood vessels. Extracranial evulsion of the nerve as done by Adson seems to give relief over a long period of time but the operation is complicated and difficult. In Singleton's case a 3 in. incision was made along the anterior border of the sternomastoid muscle from the ear downward, the sternomastoid muscle was retracted outward, the linguofacial vein ligated and cut, and the posterior belly of the digastric isolated. The parotid gland was then pulled forward, the stylohyoid muscles with the posterior belly of the digastric retracted forward and backward and

the external carotid artery behind and above these muscles pushed backward. The stylopharyngeus muscle was then visible beneath the angle of the jaw and above the retracted stylohyoid muscle. The glossopharyngeal nerve, which appeared as a white thread along the lower and anterior border of the stylopharyngeus muscle was grasped and avulsed and the wound closed without drainage.

In intracranial division of the nerve as described by Adson an incision is made as for unilateral cerebellar decompression, extending from the spine of the atlas upward to the external occipital protuberance and laterally in a horseshoe shaped curve to the tip of the mastoid. The flap of skin and muscle is then reflected and the bone is removed upward and laterally to expose the lateral and sigmoid sinuses and mesially and downward until the external occipital crest, the posterior condyloid foramen and the margin of the foramen magnum are approached. The dura is then incised and reflected mesially, and the cerebellar lobe protected by cotton strips is elevated with an illuminated elevator. Drainage of the posterior cistern or the posterior horn of the lateral ventricle may be necessary to displace the cerebellar lobe easily. After elevation of the cerebellar lobe the seventh and eighth cranial nerves are seen entering the internal auditory meatus. Inferiorly and somewhat more superficially, the ninth and tenth nerves which are short, pass almost at right angles from the medulla. The spinal accessory nerve which is longer, enters the foramen in the upper part and is separated from the vagus by a small dural band less than 1 mm wide. At this point a small right angled ganglion knife is passed between the fibers of the vagus and glossopharyngeal nerves and the glossopharyngeal nerve is sharply sectioned.

Singleton's patient has been relieved up to the time of his report. WALTER C. BURKETT, M.D.

### SPINAL CORD AND ITS COVERINGS

Stetten, DeW. An Extramedullary Tumor of the Spinal Cord Simulating Abdominal Malignancy. *Ann Surg* 1926 LXXXII 285

Stetten reports a case of intradural extramedullary neurofibroma of the spinal cord at the twelfth thoracic segment. The diagnosis was extremely difficult, the symptoms suggesting an intra abdominal malignant lesion. Although the data of numerous previous examinations were available, it was impossible to arrive at a definite diagnosis before nearly two months of the most careful observation. At operation a tumor measuring  $1\frac{1}{2}$  by  $\frac{5}{8}$  by  $\frac{1}{2}$  in was easily shelled out without damage to the cord. Complete recovery resulted. STANLEY J. SEEGER, M.D.

### PERIPHERAL NERVES

Thearle W. H. Radical Phrenicotomy for Tuberculosis. *J Am M Ass* 1926 LXXVI 811

This article is based on sixty two cases of pulmonary tuberculosis treated by radical phrenicotomy

during the last thirteen months. In all of these cases the disease was chronic and the lesions were advanced. In sixteen, the phrenicotomy was performed as a supplement to thoracoplasty and in eleven as a supplement to artificial pneumothorax. In thirty five, it was done as an independent procedure. Fifty per cent of the patients were benefited, and in 10 per cent the improvement was marked.

Thearle agrees with those thoracic surgeons who warn against the independent use of phrenicotomy in advanced pulmonary tuberculosis but believes with Alexander that in some cases of early tuberculosis in which the lesions are mainly unilateral and sanatorium care alone fails to cause improvement it will effect a cure. He concludes from his experience that radical phrenicotomy is especially advantageous when it is performed in conjunction with artificial pneumothorax and extrapleural thoracoplasty, and is the surgical procedure primarily indicated in unilateral phthisis with predominantly basal lesions.

STANLEY J. SEEGER, M.D.

Davies H. M. Phrenic Evulsion as an Aid in the Treatment of Pulmonary Tuberculosis and Bronchiectasis. *Brit M J* 1926 I 315

According to Felix, the phrenic nerve may receive fibers from the nerve to the subclavian muscle and from the hypoglossal, spinal accessory, vagus, or suprascapular nerves, either directly or through the ansa hypoglossi. In from 20 to 25 per cent (68 per cent according to Goetze) of persons there is a double phrenic nerve. The accessory phrenic nerve originates from the fifth cervical lies 3 cm lateral to the true phrenic and frequently runs close with the subclavian nerve to the thorax. It enters the thorax in front of the subclavian vein and joins the true phrenic nerve either where the scalenus anticus attaches to the first rib or at a lower point.

After section of the phrenic nerve, diaphragmatic tone is completely lost, and when one half of the diaphragm is paralyzed the X ray shows the dome to be raised in the thorax. On the right side the elevation may be from 4 to 8 cm, and on the left side from 2 to 4 cm. The initial rise is increased during the ensuing weeks as the muscle atrophies.

The rise is due partly to the intrathoracic negative pressure, but mainly to the upward force exerted from the abdomen by the abdominal muscles. When respiration is quiet, the paralyzed dome is immobile. During deep breathing it may rise still higher on inspiration and sink back with expiration (paradoxical movement). The paralysis prevents the diaphragmatic pull on the lung and expansion of the lower lobe. When the disease is localized to the base of the lung it produces a partial collapse of that portion, the degree depending upon the extent of adhesions in the costophrenic sulcus. The rest given the lung and the collapse of its base diminish the toxins thrown into the circulation.

Operations to insure complete paralysis of the dome of the diaphragm are the unpopular Goetze operation consisting in division of the nerve as low



as possible by a long incision made along the posterior border of the sternocleidomastoid muscle so as to cut off sympathetic fiber to the inferior cervical ganglion. Exposure of the fifth cervical root through the upper part of the incision and division of the subclavian nerve and phrenic nerve evulsion suggested by Thiersch and first done by Felix which consists in division of the nerve in the neck with twisting and evulsion of the peripheral end from the thorax. If the nerve is completely evulsed the terminal branches are plucked from the diaphragm but the nerve often breaks at some intrathoracic point.

The dangers of evulsion of the phrenic nerve (largely theoretical) are: (1) rupture of the nerve proximal to its juncture with the accessory branch; (2) bleeding from the pericardiophrenic artery (one case); (3) dragging on the subclavian vein by the accessory phrenic loop; (4) rupture of adherent pleura; and (5) evulsion of the vagus nerve (four cases reported in the literature.)

The indications for evulsion of the phrenic nerve are:

1 To arrest basal tuberculosis and bronchiectasis

2 In association with thoracoplasty to arrest more extensive pulmonary disease

3 To assist in controlling more generally extensive advanced or acute pulmonary tuberculosis

4 As an accessory to artificial pneumothorax in the presence of diaphragmatic and pulmonary adhesions or before a lung which has been collapsed for a long time is permitted to re-expand. When the dome of the diaphragm is paralyzed effusions are less frequent and gas absorption is diminished

5 For symptomatic treatment. Paralysis of the diaphragm makes coughing easier and expectoration freer with consequent reduction of pyrexia and improvement in the general condition. Sauerbruch successfully treated hiccough by lateral diaphragmatic paralysis

6 As a preliminary to thoracoplasty to test the ability of the healthier lung to do increased work, to improve the general condition and to prevent the development of catarrhal signs in the lower lobe

7 As a preliminary to the radical treatment of tuberculous empyema to reduce the size of the pleural cavity so as to lessen the extent of the subsequent operation

8 To prevent bronchiectasis after the imperfect resolution of pneumonia

9 To free the heart from the embarrassment secondary to extensive pulmonary fibrosis and pleuro-pericardial thickening

The author removes the phrenic nerve under local anesthesia induced with 1 per cent novocain. The skin incision is made for a distance of 2 in. along the posterior border of the sternocleidomastoid or transversely 2 in. above the clavicle two thirds being lateral and one third mesial to the sternocleidomastoid muscle. The skin platysma and fascia are divided the sternocleidomastoid is re-

tracted mesially, the omohyoid is retracted downward and the fat glands and deep cervical fascia of the scalenus anticus over which the phrenic nerve normally crosses obliquely from above downward and mesially are dissected. Care is taken to avoid displacing the nerve with the fascia. The internal jugular vein is retracted to one side. The lower end of the wound is crossed by the superficial and supra-scapular vessels. The phrenic nerve may cross the scalenus lower or higher in the neck or run in the substance of the muscle.

The nerve is divided at the highest point exposed traction being made with the forceps on the peripheral end. Wells forceps are applied on each succeeding length of nerve to prevent retraction in case the nerve should rupture immediately below the traction forceps. When 10 cm. of the nerve has been withdrawn an extra pull will probably tear the filaments from the diaphragm and bring away the entire nerve. The patient experiences a sudden jerk at the base of the chest and may gasp and the pulse rate may be accelerated. After the evulsion of the nerve the wound is closed in layers.

In one case the removed nerve trunk was 30 cm. long and the main branch 10 cm. making a total length of 40 cm. In another case the trunk measured 29 cm. and the branches 17 cm. a total of 46 cm. Generally the total length is 11 or 12 cm. In three cases after the first 6 in. appeared the arterial pulsation was so strong that the nerve was divided as low as possible without any further traction.

The author reports briefly twenty cases of evulsion of the phrenic nerve. He has performed the operation also in fourteen others.

WALTER C BURKET M.D.

## SYMPATHETIC NERVES

Winslow N. Periarterial Sympathectomy. *Ann Surg* 1926 LXXIII 333

In periarterial sympathectomy from 1½ to 2 in. of the outer coat of the artery is removed. Encircling incisions are made around the vessel at the upper and lower limits of the site chosen for denudation and are connected by a conveniently placed vertical incision. The cuts if too deep may lead to a traumatic aneurism. The tissue outlined is stripped off either as a single piece or in thin slices. According to Leriche the break in the continuity of the periarterial sympathetic plexus is followed by dilatation of the vascular tree distal to the denudated area and an increase in the blood supply with consequent improvement in the condition of the part.

The author performed a periarterial sympathectomy four times on three patients—three times for thrombo-angiitis obliterans with gangrene of the toes and once for Raynaud's disease of the foot. The operation had no effect on the progress of the disease as an amputation was necessary subsequently in every case. The failure was not due to faulty technique because in every instance the artery contracted to a mere thread throughout the entire extent of the

denuded area and ceased to pulsate both to sight and to touch distal to the operative site, a sign which, according to Leriche, is proof that the decortication was properly done.

In Winslow's opinion the information obtained from the cases so far reported is insufficient to decide the acceptance or rejection of periarterial sympathectomy. The operation seems worthless in senile gangrene, ascending neuritis, and erythromelalgia. The results are more favorable but undependable in causalgia and trophic ulcers. Although the operation is one of the best indirect methods of securing the prompt cure of varicose ulcers (Jeanneney and Mathey Cornat), the cause of these lesions is unaffected and recurrence is likely. Palma produced trophic ulcers in dogs by section of the sciatic nerve. Sympathectomy of the femoral artery did not hinder the appearance of, nor heal, these trophic ulcers. In Palma's opinion the retraction of the sleeve of cicatricial connective tissue which is formed in the artery interfered with the arterial function and led to decrease in the blood supply to the parts distal to the operative site. In some cases an obliterating endarteritis resulted from the vessel wall injury.

WALTER C. BURKET, M.D.

Sebestyen G. The Effect of Periarterial Sympathectomy upon the Circulation of the Blood (Die Wirkung der perarteriellen Sympathektomie auf den Blutkreislauf) *Orvosi hetil.* 1925 LXV 957

In experiments on dogs and rabbits Sebestyen exposed the femoral arteries and veins on both sides

and on one side performed a typical periarterial sympathectomy according to the method of Leriche and Bruening. The artery on the other side was left undisturbed. He then ligated and cut the veins on both sides and introduced a cannula into the peripheral stump.

It was found that the blood stream on the side on which the sympathectomy was performed was markedly slower than that on the other side. In dogs the flow in the side not operated upon was 1 cm. of blood in from eight to ten seconds, whereas in the side operated upon it was 1 cm. in from sixteen to eighteen seconds. When the adventitia was not removed with the knife, but was destroyed by fuming nitric acid or carbolic acid, the blood flow was not retarded, although the disturbance in the wall of the blood vessels caused by this method extended much more deeply than that caused by the Leriche and Bruening procedure. It therefore appears that the diminution in the speed of the blood stream is due to a spasm of the vessel caused by the traumatic insult associated with the stripping off of the adventitia. This effect is transient, however, and followed by dilatation of the vessels and hyperæmia.

A study of the hydrogen ion concentration of the blood showed the values to be decidedly decreased in the sympathectomized extremity, falling, on the average, from 8.7 to between 7.1 and 6.9. This decrease was most marked at the end of the second week. At the end of the third week the differences between the two extremities had disappeared.

PÓLYA (Z)

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Bunts F E Cysts of the Breast A Statistical Study *Ohio State W J* 1926 xvii 69

From a review of the recent literature on cysts of the breast and his experience with 375 cases of this condition Bunts draws the following conclusions

1 It is probable that all cystic conditions of the breast are due to the same primary causes therefore a classification of benign cystic conditions is of neither etiological nor clinical importance

2 It is possible that the same etiological factors that produce cystic conditions of the breast also produce carcinoma but there is no final evidence at the present time that cysts of the breast *per se* are preneoplastic in character

3 It appears evident that at least in certain cases cystic conditions of the breast in common with other types of benign tumors may be due to intestinal toxemia

4 The indicated treatment of cystic conditions of the breast may be summarized as follows

A In cases of diffuse chronic cystic mastitis in women under 30 years of age a waiting policy may be adopted After the age of 30 years the breast should be examined at intervals of not more than six months to determine whether there are signs of a recurrence of the cysts or the initiation of a malignant growth

B Single cysts should be removed and subjected to histological study If the growth proves to be benign nothing further need be attempted but the patient should be examined at frequent intervals to determine whether there is a cyst elsewhere in the same breast or in the other breast

5 In the presence of a cystic condition of the breast the possibility of carcinoma should be borne in mind

RALPH B BETTMAN M D

Fischer W The Clinical and Pathological Anatomical Diagnosis of Tumors and Cystic Changes in the Breast (Ueber die klinische und pathologische anatomische Beurteilung von Geschwulsten und cystischen Veränderungen der Brustdrüsen) *Deutsche Zeitschr f Chir* 1925 cxvii 1

In the period from April 1922 when Fischer took over the direction of the Pathological Institute at Rostock up to May 1 1925 he received 3 337 specimens of pathological material for diagnosis Among these were 300 breast specimens One hundred and fifty one of the latter showed carcinoma seventy one fibroadenoma ten diffuse fibrosis thirty two cystic disease twenty one cystic disease and carcinoma four tuberculosis one sarcoma one fibroma two adenoma one simple ulcer and two normal breast tissue

The diagnosis of the clinician and pathologist agreed with regard to 160 specimens (55 per cent) The clinical suspicion of malignancy was confirmed in thirty seven (22 per cent) but disproved in sixty two (21 per cent) The clinical diagnosis was a benign condition but the anatomical diagnosis was malignancy in seven cases (2.3 per cent) The clinical diagnosis was uncertain and the anatomical diagnosis was a benign condition in twenty eight cases (9 per cent) Accordingly the chief error was the assumption of the presence of a malignant process

The cases of unrecognized carcinoma included three of carcinoma associated with cystic disease of the breast two cases of Paget's disease which were diagnosed clinically as ulcer and eczema and two cases of fibroma

As the specimens came from various clinics and general practitioners they were not uniformly diagnosed as was the material of MacCarty of the Mayo Clinic Nevertheless Fischer's and MacCarty's figures agree well with regard to the diagnosis of malignant tumors In Fischer's benign cases the diagnosis was correct in only 58 per cent

Fischer believes that the macroscopic diagnosis of carcinoma is possible in 85 per cent of the cases

Cystic disease of the breast was found by Fischer in fifty three of the 300 specimens Most of the subjects were in the fifth decade of life The youngest was 28 years and the oldest 60 years

In twenty one of the specimens of cystic disease carcinoma was found also In about half of the cases Kruftmann's so called perforating proliferation was present In five the tumor was an adenocarcinoma in six a carcinoma simplex in two a scirrhous carcinoma in four a cornifying carcinoma in one a colloid carcinoma and in two a papillary carcinoma In twelve of these twenty one cases the diagnosis was made clinically In six carcinoma was suspected and in three it was not suspected

In the cases of non carcinomatous cystic disease the condition was diagnosed as benign in sixteen as malignant in thirteen and as fibroma in three Accordingly carcinoma was suspected in 40 per cent of the cases of benign cystic disease and in 21 per cent of the total number of cases From this it is evident that the diagnosis is very difficult Carcinoma developed in 40 per cent of the cases of cystic disease of the breast

Fischer discusses the fact that today cystic mastitis is considered an involutional process This theory best explains it and its relation to fibrosis It is of course possible that carcinoma and cystic disease of the breast may develop simultaneously as distinct entities Cystic disease of the breast may be also the result of a carcinoma since the penetration

of the cancer may obstruct the excretory ducts and the gland ducts and thereby cause the dilatation. It is more probable, however, that the formation of cysts is the cause of cancer formation. This is indicated by the transition of normal epithelium to atypical epithelial proliferation and to carcinoma and also by certain surgical and other pathological findings. KAPPIS (Z)

### TRACHEA, LUNGS, AND PLEURA

Adam J. Four Cases of Tracheal Tumor. *J Laryngol & Otol* 1926 xli 174

The author is inclined to believe that while primary tracheal growths are rare, they are more common than is generally supposed. He reports four cases. Three of the patients were women between the ages of 18 and 40 years.

Dyspnea, cough, and occasional hæmoptysis suggest asthenia and tuberculosis, but an apparently good general condition and the absence of obvious intrathoracic signs and of tubercle bacilli suggest tumor in the tracheobronchial tree and demand endoscopy. Because of the occurrence of necrosis after radiation it is questionable whether radiation is advisable when surgical treatment is possible.

GEORGE R. McAULIFF, M.D.

Lorey. The Value of Contrast Media in the Bronchi for the Demonstration of Bronchiectases (*Ueber den Wert der Kontrastfärbung der Bronchien zur Darstellung der Bronchiektasen*). *Fortschr a d Geb d Roentgenstrahlen* 1925 xxxiii 58

In twelve cases the author filled the bronchial tree with contrast media as proposed by Sicard and Forrester and found that by this means very satisfactory roentgenograms could be obtained.

After the induction of anaesthesia of the pharynx and larynx and the administration of morphine, a thin tube with a metal olive at its end, similar to a duodenal tube, was introduced into the trachea and glided through the vocal tubes into a bronchus under the control of the laryngeal mirror and with the patient in the upright position. An injection of from 25 to 60 c. cm. of a 40 per cent iodipin solution was then made. The bronchi of the upper, middle, or lower lobes were filled by causing the patient to assume different positions during the injection.

In none of the cases was this procedure followed by aspiration pneumonia or other complication. On the contrary, the injected iodipin had such a favorable influence upon the severe catarrh that the author believes it probable that other substances might be introduced into the bronchi in this way for therapeutic purposes.

The injected contrast medium is usually coughed up completely within twenty-four hours but in some cases a small residue may remain in the bronchus for several weeks.

In spite of the high iodine content of the contrast medium, Lorey has seen only one case of iodism. In this case the condition lasted for two days.

Lorey believes that the use of contrast media in the bronchi should be limited to cases in which it will be of considerable diagnostic and therapeutic value, such as cases of bronchiectasis in which an indication for operation is to be established. BERNSTEIN (Z)

Escudero, P. Terrada H. M. and Gallino M. M. Visualization of Hepatobronchial Fistulae by Retrograde Filling with Iodized Oil (*Visualización de las fistulas hepatobronquiales por relleno retrogrado con aceite yodado*). *Arch argent de enferm d apar digest*, 1925 i, 189

In a case of suppurated echinococcus cyst with a bronchial fistula the author injected 10 c. cm. of lipiodol into the cyst through the ninth intercostal space. Roentgenograms were then made with the patient in the standing position, in dorsal decubitus, and in the Trendelenburg position.

In the standing position the contrast material was shown collected in the irregular pockets in the bottom of the abscess pouch. In dorsal decubitus it showed the extent, shape, and location of the abscess cavity. With the patient in the Trendelenburg position, the plate exhibited, after fifteen minutes, the long irregular unbroken course of the fistula leading to the bronchus and presenting at its termination or entrance into the bronchus an ampulla like dilatation. After a further lapse of fifteen minutes it showed filling of the bronchus as far as the main bronchus and in addition, filling of several of the branches of this bronchus. The last roentgenogram, which was made with the patient in the dorsal decubitus after a fit of coughing, showed the right bronchial tree and the abscess cavity practically empty. Only the terminal portion of the fistulous tract with its ampulla, was visible. Other shadows scattered about the right lung were due to a previous attempt to fill the tract of the fistula from above by the method of Sicard and Forrester.

JOHN W. BRENNAN, M.D.

Jackson C. Suppurative Diseases of the Lung Due to an Inspired Foreign Body Contrasted with Those of Other Etiology. *Surg Gynec & Obst* 1926 xlii 305

Pulmonary suppuration starting endobronchially and due to the presence of a foreign body is such a mild slow and restricted process as compared with embolic post-pneumonic and post-influenzal suppurations and manifests such a tendency toward prompt and complete recovery after removal of the foreign body as to suggest the presence of some sort of physiological or structural barrier against the invasion of suppurative processes by the endobronchial route.

These characteristics of foreign body suppuration are most marked in cases of metallic foreign bodies, which seem to possess germicidal powers. Minus the germicidal powers they are present to a less degree also in cases of other kinds of foreign bodies. They are least apparent in cases of vegetable foreign bodies, but even in these the prompt recovery which

almost always occurs if the foreign body has not been long in the tracheobronchial tree is in marked contrast to the course of lung suppuration due to any other cause than foreign body

Complete recovery in a large series of cases of foreign body suppuration of from ten to thirty six years duration with no other treatment than the removal of the foreign body is so different from the course of pulmonary suppuration due to other causes as to call for a separate classification of suppurations produced by endobronchial foreign bodies

**Boldero H E A and Whithy L E H** Associated Organisms Causing Empyema *Lancet* 1926 ccx, 492

The authors report a case of empyema in which two organisms were associated in the production of the condition the one a mycelium and the other a pneumococcus Alone neither of these organisms was pathogenic to guinea pigs but together they always produced lesions Clinically the striking feature of the case was the chronicity of the condition The empyema probably began after an attack of pneumonia which occurred five months before the patient came under the author's observation During the three months the patient was in the hospital he was never very ill and at no time showed marked signs of toxæmia

RALPH B BETTMAN M D

## ESOPHAGUS AND MEDIASTINUM

**Key E** Obstruction of the Esophagus by a Calcified Intrathoracic Gland (Passagehindernis in der Speiseröhre durch eine verkalkte intrathorakale Drüse) *Hygien* Stockholm 1925 lxxvii 772

In the case reported in this article there was rapidly developing dysphagia The roentgenogram showed a shadow the size of a plum and compression of the esophagus to the diameter of a lead pencil Because of the rapidly progressive loss of weight operation was undertaken with the aid of a positive pressure apparatus the Tiegel Henle method

In front of the esophagus at the upper margin of the lower portion of the trachea a grayish white tumor the size of an apple was found between the layers of the pleura In attempts to peel it out the thin capsule was torn The contents consisting of crumbling masses were scooped out The capsule which was closely bound to the medial aspect of the pleura was successfully separated except for a very small portion adherent to the trachea The operation was followed by uneventful recovery with complete relief of the dysphagia

The capsule of the tumor consisted of connective tissue Although no tubercle bacilli were found the tumor was considered to be a calcified tuberculous lymph gland because the X ray demonstrated old tuberculous changes in the lungs GERLACH (Z)

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Gray H T The rôle of the Mesentery in Visceral Disorders *Lancet* 1926, ccc, 381

When an inflammatory process involves the mesentery there is irritation of the pacinian corpuscles and the efferent and afferent nerves. It is because of this involvement that acute appendicitis is accompanied by pain which produces guarding by abdominal rigidity and by inhibition of the mobility of the bowel which allows rest of the inflamed part. When this active inhibition is prolonged, paralytic ileus is produced which causes a rise in the intra abdominal pressure followed by impairment of the circulation as the result of pressure on the veins of the mesentery. In the treatment it is therefore necessary to diminish the intra abdominal pressure, as by gastric lavage and temporary ileostomy.

Interference with the venous return may produce stercoral ulcers on the anti mesenteric border the capillary area most remote from the main vessels. Similarly, distention of the first part of the duodenum may cause duodenal ulcer, and tension on the stomach may produce local anæmia followed by ulcer formation the location of which is dependent upon the type of distention or tension on the blood vessels.

The mesentery is not normally a supporting structure for the viscera. The two mechanisms of visceral support are (1) certain fixed points and (2) intra abdominal pressure. The latter is maintained chiefly by the musculomesenteric reflex which varies with the degree of fixation. When there is a breakdown of the normal visceral support the mesentery assumes this function, the resulting tension on the nerves, blood vessels, and lymphatics causing progressive and far reaching symptoms. The treatment should be directed toward protecting the mesentery from undue strain. Frequently this protection can be given only by surgical reconstruction of the defective mechanical support of the viscera.

EARL G GARSIDE M D

## GASTRO-INTESTINAL TRACT

LeWald, L T Roentgen Diagnosis of Syphilis of the Stomach *Radiology* 1926, vi, 138

The author believes that the value of the roentgen ray in the diagnosis of syphilis of the stomach should be emphasized particularly because the other findings are likely not to be conclusive.

The presence of a mass achlorhydria and weight loss should never lead to the diagnosis of gastric cancer unless there are unmistakable roentgen signs of carcinoma. On the other hand, a negative Wassermann reaction and the absence of a history or

signs of syphilis do not exclude the possibility of syphilis.

The roentgen findings of syphilis of the stomach are the following:

1 Diminished size with rapid emptying of the stomach and often a compensatory dilatation of the œsophagus.

2 A fairly symmetrical deformity, often producing a dumb bell appearance.

3 A small tubular stomach, commonly spoken of as "linitis plastica."

4 A filling defect more extensive than that of simple ulcer and very similar to that of carcinoma.

While definite proof of syphilis of the stomach rests upon the finding of the *spirochæta pallida* in the lesion the roentgen evidence is usually sufficient for a tentative diagnosis. The diagnosis is quickly confirmed by the prompt improvement of the roentgen signs and the symptoms under anti syphilis treatment. Unnecessary resection of the stomach will therefore be avoided.

One case is cited in which the diagnosis was established by gastroscopic examination with the removal of a section for microscopic examination.

CHARLES H HEACOCK, M D

Lenk R Ulcer Therapy as Tried on Niche Ulcers (Ulcustherapie erprobt an Nischenulcerna) *Strahlen therapie* 19 5, xv, 103

The author reviews 100 cases of gastric or duodenal ulcer which were treated with the roentgen ray. Definite improvement resulted in 90 per cent, and six of the patients have remained cured for years. In all of the cases so treated the presence of an ulcer was demonstrated roentgenologically without doubt. No other treatment besides the roentgen irradiation was given.

Untoward general phenomena were either entirely absent during the irradiation or only trivial. The ulcer symptoms that disappeared first under the roentgen therapy was the spontaneously occurring spasmodic epigastric pain. The pressure sensation at the site of the ulcer persisted somewhat longer. The cessation of epigastric pain is attributed to the spasmolytic action of the roentgen rays. The hyperacidity decreased slowly. Hemorrhages were frequently arrested, an effect attributed to the simultaneous irradiation of the spleen and liver. The spastic obstipation often associated with ulcer usually ceased spontaneously. Not infrequently, the niche seen in the roentgenogram soon disappeared. Spasm of the circular muscle fibers at the level of the ulcer frequently persisted for a long time. Cicatricial processes were not influenced.

From one fourth to one third of an erythema dose was given over an area of the abdomen and an area

of the back on four successive days with the use of a zinc filter from 0.3 to 0.5 mm in thickness a 28 cm spark gap and a focal distance of about 30 cm

SILBERBERG (Z)

**Carman R D. The Roentgenological Diagnosis of Peptic Ulcer. Texas State J M 1926 xvi 599**

The one sign on which the diagnosis of gastric ulcer can be made with confidence is the roentgenographic demonstration of the crater of the ulcer the niche or its exaggerated form the accessory pocket. In favorable situations as for example on or near the lesser curvature the niche is visible as a local prominence on the gastric silhouette. When the ulcer is on the posterior wall the niche may be brought into view as a local density when the gastric walls are approximated by palpation. The accessory pocket usually projects markedly from the lesser curvature and is not apt to escape recognition.

Secondary signs of gastric ulcer include retention from the six hour meal which occurs in about half the cases organic or spastic hourglass stomach and spastic distortion of the pyloric segment. Secondary signs are corroborative but none is diagnostic. Ulcers with niches having a diameter of 2.5 cm or more are likely to prove malignant those with craters which do not project beyond the gastric outline and are surrounded by a high overhanging ridge are invariably malignant. On the other hand an ulcer which has all the roentgenological characteristics of a simple ulcer may reveal cancer cells on microscopic examination.

Bulbar deformity is the most common manifestation of duodenal ulcer. In some cases a definite niche can be distinguished. When obstruction results from duodenal ulcer it may be impossible to fill the bulb and visualize it satisfactorily. In such cases the combination of retention and hyperperistalsis is diagnostic if the stomach is large and of normal contour.

**Caylor H D. The Healing of the Gastric Ulcer in Man. Ann Surg 1916 lxxxi 350**

The first stage of gastric ulcer is probably the acute hemorrhage in the mucosa and submucosa which grossly may appear as only a red spot with a slight break in the glistening membrane. Microscopically there is a defect in the epithelium with free blood in the excavation and adjacent tissues. This early ulcer is usually cone shaped the apex of the cone being toward the muscularis and the base at the lumen of the stomach.

The second well known picture of gastric ulcer is the chronic U shaped lesion the walls of which are composed of fibrous connective tissue infiltrated with lymphocytes plasma cells leucocytes and mast cells. The base of the defect contains connective tissue and occasionally an organizing fibrinous exudate granulation tissue and necrotic material.

Blood vessels in the deeper tissues of the wall opposite the defect may be thrombosed or contain canalized thrombi. At the edges of the ulcer the

epithelial cells flatten and attempt to cover the denuded area.

In the final stage after the gastric ulcer is healed there is a pale pink to gray scar covered by mucous membrane. The epithelium topping the scar is a thin layer of cuboidal and columnar cells. Just beneath this layer are deformed cystic glands and surrounding these there is fibrous connective tissue infiltrated with inflammatory cells. The muscularis is replaced by fibrous tissue.

The author describes the pathological appearance of a duodenal ulcer excised at operation which measured 6 by 3 by 1 mm. In the base of this lesion there was an organizing fibrinous exudate. At the edges of the cavity the epithelial cells were flattened and apparently attempting to grow down and cover the excavation. The gastric ulcer revealed unusual changes. In the base of the cavity and almost filling it was a raised gray to pink area. Immediately after it was photographed the ulcer was put into 10 per cent formalin and later serial sections were cut. Preparations from the margin of the excavation contained a raised plateau 'or mushroom' of granulation tissue covered by a single layer of flattened gastric epithelium. Nearer the center of the ulcer there was a definite break in the mucosa with an organizing hemorrhage in the ulcer cavity. Continuing toward the center of the ulcer more advanced organization of the blood clot was revealed with the development of blood vessels in the clot and the adjacent tissue in the base of the ulcer. A definite plateau had developed in the ulcer as described by Mann. In some areas the epithelium at the margin of the defect had lost its columnar character becoming cuboidal and had apparently grown out on this granulation tissue bed and up the sides of the mushroom. In some regions of the ulcer there were many concentric organizing hemorrhages. At one point in the ulcer cavity there was free blood with an abrupt fault of the epithelium and tearing loose of granulation tissue. Gram stains of sections of tissue from the ulcer made according to Rosenow's technique revealed many Gram positive diplococci in the deeper granulations of the ulcer. Distal from the ulcer no organisms were found except on the surface of the mucosa. Rosenow and others have observed morphologically similar organisms in peptic ulcers in man.

**Fasman R E. The Surgery of Gastrocolic Fistula Following Gastro Enterostomy (Cirugía de la fistula gástrica consecutiva a gastro enterostomía). Rev de cirugía Buenos Aires 1926 v 43**

In a case in which a gastro jejunal ulcer (post operative jejunal ulcer) in the region of a gastro enterostomy orifice into the colon had evidently perforated an appendicostomy was done to permit cleansing of the cæcum and colon. The portion of the colon from the cæcum to the point of stenosis at the gastrojejunal anastomosis in the center of the transverse colon was distended and filled with fecal material of a pasty consistency, while the portion

distal to the point of anastomosis was empty and greatly decreased in caliber.

After twenty days of dietary measures and daily lavage of the right or proximal section of the colon through the appendicular fistula with several liters of water containing a small amount of sodium sulphate the general condition showed marked improvement. The author states that he is at a loss to explain the associated decrease in the gastrogenic diarrhoea, unless it can be attributed to the improved adaptation of the colon resulting from a decrease in the size of its dilated lumen.

Operation revealed cicatricial narrowing of the pylorus and dilatation of the entire small intestine and of the large intestine proximal to the middle of the transverse colon. Since peptic ulcer is rare when the pylorus functions well, the author performed a gastroduodenostomy by Balfour's method, establishing a wide communication from the stomach into the duodenum through the pylorus. He then closed the gastro enterostomy openings separately. The opening into the colon was so large that resection of a portion of the colon seemed preferable to simple closure. The results five months after the operation were excellent.

JOHN W. BRENNAN, M.D.

**Horsley J S Partial Gastrectomy Its Indications Prophylaxis and Technique** *J Am M Ass* 1926, lxxxi, 664

Two lesions in which gastrectomy is indicated are malignancy and peptic ulcer with its complications and sequelae. The importance of malignancy as an indication admits of no discussion. For peptic ulcer, gastrectomy is indicated when the lesion has recurred after a pyloroplasty or persists after a gastro enterostomy. Jejunal ulcer also is an indication for gastrectomy.

The author describes a modified Billroth I operation in which the stomach is united to the duodenum along the lesser curvature and the lower portion of the gastric stump is infolded and further protected by the suturing over it of adjacent peritoneal fat. To prevent obstruction an incision from 1 to 1½ in. long is made in the anterior wall of the duodenum to increase the caliber of the intestine at the point of union with the stomach. Even when as much as half of the stomach is resected the remainder can be joined to the stump of the duodenum satisfactorily by this procedure. The author has performed the operation ten times.

HARRY W. FINE, M.D.

**Portis S A and Portis B The Effects of Subtotal Gastrectomy on Secretion** *J Am M Ass* 1926 lxxxi, 836

The studies reported in this article were made on three dogs. A Pawlow pouch was first formed and after a period of analysis of the gastric secretion from both the stomach and the pouch, a subtotal gastrectomy was done and the gastric secretion then again analyzed. The operations are described and illustrated.

The following conclusions are drawn

1 The gastric secretion in dogs after a subtotal gastrectomy shows absence of free acid, but a high combined acidity, whereas the secretion from a Pawlow pouch, representing a similar part of the stomach, continues to secrete acid after the resection.

2 Neutralization is the most important factor explaining the absence of free acid observed experimentally and clinically in the gastric secretion after subtotal gastrectomy.

3 The artificial achylia produced may establish an entirely new and possibly harmful bacterial flora in the gastro intestinal tract with consequent gastro intestinal abnormality.

J. FRANK DOUGHERTY, M.D.

**Babcock, W W A Method of Partial Gastrectomy with Telescopic Anastomosis** *Surg Gynec & Obst* 1916, xlii, 403

The author believes that end to end anastomosis is the most nearly physiological and anatomical method in partial gastrectomy. The objections to an end to end union between the stomach and duodenum are

1 The disproportion in the size of the openings in the stomach and duodenum which causes technical difficulties, especially when large resections are necessary.

2 The occurrence of excessive tension with the danger of secondary separation and leakage at the suture line.

3 Secondary narrowing of the new opening with obstruction.

4 Difficulties in mobilizing the duodenum with danger of hemorrhage leakage or damage to the pancreas or the pancreatic or biliary ducts.

Babcock has employed a method of telescopic anastomosis in ten cases. Instead of making an end to end union of the stomach and duodenum the duodenum is turned into the open end of the gastric stump after a high resection of the gastric mucous membrane and the outer serous surface of the duodenum is united to the inner surface of the muscularis of the stomach. The entire thickness of the cut end of the duodenum is united to the gastric mucosa.

This anastomosis has the advantage of strength and mechanical adaptation. The technique is described in detail.

HARRY W. FINE, M.D.

**Ross J W Hypertonic Saline Solution in Adynamic Ileus** *Canadian M Ass J*, 1926, xvi, 241

The advisability of causing peristalsis in peritonitis depends upon the harm that may be done by absorption of the contents of the quiescent bowel and whether peristalsis will spread the infection so that absorption from a larger area of peritonium will be fatal.

McVicar has found that ileus associated with a fall in the chlorides, a rise in the carbon dioxide combining power, and a rise in the non protein nitrogen of the blood. There is a definite indication for the use of salt solution in combating the fall in the chlorides and in decreasing the harm produced by it.



Hughson and Scarff have shown that the intravenous administration of hypertonic salt solution delays the absorption of toxic products by the gut. Incidentally they noted that violent peristalsis began immediately after the injection and continued for an hour.

The author gives the protocols of his experimental work on dogs in which a gut distended by means of an inflated finger cot peristalsis occurred after the administration of hypertonic solution.

Three clinical cases of adynamic ileus are reported two due to appendicitis and one due to a perforated gastric ulcer. All of the patients passed flatus and feces after the intravenous administration of hypertonic saline solution and ultimately recovered even though it seemed that they were moribund.

J FRANK DOUGHTY M D

**Meyer W. The Duodenal Tube in the Postoperative Treatment of Gastro Enterostomy.** *Med J & Rec* 1926 LVIII 394

Meyer cites several cases of severe vomiting following gastro enterostomy in which the use of a duodenal tube relieved the vomiting almost immediately and probably saved the patient's life.

SAMUEL KAHN M D

**Lockhart Mummery J P. Diverticulitis and Its Surgical Treatment.** *Lancet* 1916 CXIV 437

Diverticulitis is the condition in which secondary inflammatory changes have occurred in hernial protrusions or diverticula in the walls of the colon.

Of the author's forty one patients with diverticulitis twenty five were males. The sigmoid was involved in thirty six cases the transverse colon in three and the ascending colon and cecum in one case each.

The ideal surgical treatment is resection of the affected portion with end to end anastomosis and temporary cecostomy. This can be done however in only a relatively small percentage of cases viz those in which the condition is localized. Colostomy though undesirable in many respects is very safe and often is the only rational treatment.

In nine cases the author adopted the less radical procedure of freeing the adhesions removing any prominent diverticula and then drawing the damaged bowel well up onto the ileum and wrapping about it a fold of omentum.

Early diagnosis and treatment may make surgical interference unnecessary. EARL G GARSIDE M D

**Coffey R C. Colonic Polypsis with Engrafted Malignancy.** *Ann Surg* 1926 LVIII 364

There is probably no benign process with a higher incidence of malignancy than colonic polypsis.

Indications for treatment of colonic polypsis are the depleting hemorrhage and diarrhea and the high incidence of malignant change. Non radical palliative treatment comprises cecostomy appendicostomy irrigations and radium therapy. Radical effective treatment—excision of the polyp bearing

area—is limited by technical difficulties and the impossibility of determining the extent of the process pre operatively.

Every disease should be treated on the basis of its pathology. It is quite generally conceded that colonic polyposis results from an inflammatory or ulcerative condition of the mucous membrane of the colon. A technique for removing the entire colon including the rectum is described in detail. This operation is done in three stages. An ileostomy is performed first and followed in ten days by resection of the entire colon and sigmoid. From ten to fourteen days later a posterior resection of the rectum is done. At first the discharge from the ileostomy is thin and contains a great deal of bile and intestinal secretion but after an interval of a few weeks or a month the distal loops take on the normal function of absorption of the large intestine and only one or two movements occur a day. Thus a normally functioning abdominal mechanism is established.

Brown has emphasized the merits of ileostomy as compared with colostomy. When the distal and proximal loops are sutured together there is no danger of herniation of the viscera around the ileostomy.

MERLE R HOON M D

**Mayo C H and Hendricks W A. Carcinoma of the Right Segment of the Colon.** *Inn Surg* 1926 LVIII 357

The clinical experience with cancer at the Mayo Clinic has been greatly aided by the observations of the pathologists with regard to the changes in the cells and the development of defensive tissue with its effect on cancer cells. All have been viewed with reference to the progress of the patient over a period of years with or without operation or other treatment. The work of MacCarty and Broders on the morphology and differentiation of malignant cells and the relation of these to classification diagnosis and prognosis has done much to establish rational treatment. By their method the prognosis with regard to the probable cure or length of life of a patient with any particular form of cancer can be most accurately ascertained. The surgical treatment of cancer is now much more thorough than it was in the past. Moreover it has been learned that fixed growths and growths with extensive metastasis are best treated by radiation unnecessary surgical mortality being thus reduced.

The factors which should influence the surgeon in the surgical procedure for carcinoma of the large bowel are low mortality increased comfort and the satisfactory late results. The roentgen ray is a very definite help in the accurate diagnosis and location of tumors of the alimentary tract. Blood stained mucus or stools are less commonly noticed in cases of tumor of the right large bowel than in cases of tumor of the left bowel or lower segment in which fecal traumatism is more likely. Pain is a most prominent symptom when there is partial obstruction. A tumor may not be palpable because of gas and general distention of the abdomen or may be obscured by fat until there

is an appreciable increase in its size. In certain cases two malignant tumors of different types may be situated in widely separated areas in the large bowel.

For carcinoma at any point from the ileocecal coil to the hepatic flexure the technique described by the authors consists in removing the right segment of the colon with a few inches of the ileum. Since the cæcum and ascending colon originate embryologically on the left side of the abdomen and pass upward across to the right, and down to the iliac fossa, it is clear that the nerves and vessels are necessarily on the inner side of the colonic mesentery. Therefore, in operations on the right segment of the colon the division of the peritoneum should be made on the white line of attachment of the outer mesenteric leaf to the parietal peritoneum as this greatly simplifies the operative work. If the bowel in the area of the tumor is movable a radical operation is advisable. The ileocecal coil and right segment of the colon are best removed and the ileum united to the transverse colon. At times resection is done in two stages the primary step being ileocolostomy. The authors prefer an end to side union of the ileum with the transverse colon. They state that this procedure is ideal for the use of the Murphy button. The technique of the resection and anastomosis are described. The transverse end of the colon is incorporated in the lower angle of the wound with catgut guides leading from the purse string of the segmented large bowel. If gas distention occurs within four days, the bowel may be punctured, the catgut being used as a guide to the closed end of the large bowel.

The authors give statistics concerning 757 patients with carcinoma of the right segment of the colon who have undergone operation. In a great number of these cases resection was inadvisable because of metastasis. Some of the patients are still living four, eight and nine years after the operation. At best, the results of operation for carcinoma are not satisfactory, but death is inevitable if the carcinoma is not removed.

Filtration from the liver is so perfect that carcinoma cells are not passed into the portal vein and as a consequence the liver is involved later in cases of carcinoma of the right segment of the colon than in cases of carcinoma of the left and lower segments. In the presence of an ulcerated carcinoma the few lymph nodes along the large bowel may become enlarged but this enlargement may be due to inflammatory changes and therefore does not necessarily indicate inoperability.

**Dziadoszynski A.** Gangrene of the Transverse Colon. First Report of a Cured Case (Gangraen des Colon transversum erstmalige Beobachtung eines geheilten Falles). *Zentralbl f Chir* 1925 li 2120.

Gangrene of the transverse colon has been repeatedly observed following resection of the stomach after ligation of the middle colic artery or one of its main branches. It may result also from separation

of the adherent mesocolon in the immediate vicinity of the intestinal tube and resection of quite a large portion of the mesocolon without ligation of one of the larger blood vessels and without separation of the intestine from its mesentery. In all of the cases of gangrene the colon which have been reported in the literature the condition was fatal.

The author reports a case of necrosis of the colon without ligation of the colic artery in which a cure resulted. The patient was a 23 year old woman who, on September 30, 1922, was subjected to an anterior gastro enterostomy for ulcer of the duodenum. On October 26, 1923, an extensive resection of the Kroenlein Mikulicz type was done for peptic ulcer of the jejunum. The patient was discharged from the hospital with a fistula and was operated upon for closure of the fistula on June 6, 1924. The fistula was caused by two tumors of the mesocolon, one the size of a walnut and the other that of a hen's egg—within which old ligatures were demonstrable. Both tumors were extirpated, care being taken to protect the middle colic artery. On June 17, 1924 when the opening of an abscess became necessary, the entire transverse colon was found necrotic. On September 8, 1924, the ileum was anastomosed to the descending colon. On November 4, 1924, the colonic stomata, which had become approximated by cicatricial contractions were closed. After a smooth recovery the patient was discharged on November 20, 1924, with good intestinal function. KALA (Z)

## LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

**Vesell H and Sherwin C P.** Testing of Liver Function. Detoxication by the Liver. *Arch Int Med* 1926 LVIII, 257.

The liver has a most complex physiology. It plays an important role in the metabolism of proteins, carbohydrates and fats, it helps form bile pigments and bile salts and it performs detoxication work. Because of its multiple functions, its condition in any normal or pathological case cannot be determined by means of a single functional test. Experiments have shown that certain chemical and metabolic reactions may at times be limited to a single species.

The authors studied the acetylation of para aminobenzoic acid which occurs in the liver in the normal human body. The test is described in detail, but the quantitative chemical estimation of para aminobenzoic acid in the urine is too cumbersome for use as a clinical method even if it should prove satisfactory otherwise.

The test was applied to cases of cholecystitis, cirrhosis, carcinoma, and abscess of the liver, catarrhal jaundice, and carcinoma of the head of the pancreas. These cases presented symptoms of impairment of the function of the liver and all showed decreased acetylation. Serious renal and cardiac disease did not decrease the percentage of acetylation in the liver.

The results in general indicate that severe liver damage gives low readings (zero in two carcinoma cases) and that milder liver involvement gives only slightly lowered readings CYRIL J GLASPEL MD

Richter H M Cholecystography *J Am M Ass* 1926 lxxxvi 937

While appreciating the great value of cholecystography in cases of advanced gall bladder disease in which the history is atypical or difficult to obtain the author warns against a source of error in the interpretation of the normal shadow and calls attention to a peculiar psychological process by which the method may cause confusion The source of error lies in the fact that we are likely to interpret gall tract infection in terms of gall stones and advanced pathological changes

It has been estimated that the patient with gall stones comes to operation after an average of approximately twenty years of incubation and development of his infection Therefore if gall bladder disease is interpreted in terms of the early pathological changes with early symptoms of extragastric dyspepsia at which stage it is often possible to diagnose the condition from the history alone not only must cholecystography fail but the clear cut roentgenogram of the gall bladder which is typically normal at that stage directs attention away from this viscus as the source of the trouble

Gall bladder infection is recognizable clinically in a large percentage of cases before stones are present and long before the gross appearance of the organ is greatly changed or gall bladder function is materially or persistently deranged

J FRANK DOUGHTY MD

Levyn L and Aaron A H Cholecystography by the Oral Method *Radiology* 1926 vi 94

When the dye used for cholecystography is given by way of the alimentary tract the peculiarities of the portal circulation are such as to compel most of the absorbed products to pass through the liver prior to their discharge into the systemic blood stream Direct intravenous injection involves difficulties of technique with the possibility of local injury to the peripheral blood vessels at the site of operation Other disadvantages of the latter method are the danger of bacterial contamination and the fact that the vehicle as well as the drug is immediately foreign to the blood The intravenous injection of a large variety of substances was found to cause definite and important changes in the arterial blood accompanied as a rule by disturbances in physiological function In experimental animals disturbances in these processes were indicated by changes in the blood pressure and the pulse and respiratory rates ranging from moderate to profound and resulting frequently in collapse and sometimes in death

Levyn and Aaron therefore carried out experiments in the hope of securing some type of protected capsule which would allow better absorption of the dye interference with which is due largely to a

chemical reaction Tetra iodophenolphthalein sodium salt is very readily soluble in water but in the presence of mineral acid such as hydrochloric acid the free acid of the tetra iodo is formed which appears as a white sediment and is highly insoluble in water

If the sodium salt is given directly into the stomach the acid gastric juice immediately converts the salt to the insoluble free acid If this free acid passes on into the intestines the alkalinity of the intestinal fluid is not sufficient to convert the free acid to the soluble salt again and the desired result cannot be obtained

The oral method of administering the dye has the distinct advantage of simplicity and none of the dangers of the intravenous method In doubtful cases examinations may be easily repeated Diagnostic interferences may be drawn as from the visualization produced by the intravenous method Until large numbers of operative and pathological reports have established the significance of marked variations in the emptying time and a mottled appearance of the gall bladder the diagnosis of gall bladder disease should not be based on these findings alone A correct interpretation of visualization and non visualization will be attained only as the result of collaboration between the pathologist roentgenologist and surgeon

The chief purpose of this article is to report what to the author has proved the best and simplest method of administering the dye orally eliminating the uncertainties of the use of chemically hardened capsules affording the greatest degree of protection against the acid of the gastric juice and making available for absorption the largest amount of the dye

All patients subjected to cholecystography should have their chest screened because restricted diaphragmatic excursion causes diminished pressure on the liver during inspiration thereby mechanically delaying the emptying time of the gall bladder At times it is possible to demonstrate adhesions between the gall bladder and the anterior abdominal wall If the position of the gall bladder is the same after deep inspiration as after expiration we would assume that it is fixed probably to the abdominal wall because normally the gall bladder will be seen considerably lower after deep inspiration than following expiration

MORRIS H KAHN MD

Graham E A Cole W H Copher G H and Moore S Simultaneous Cholecystography and Tests of Hepatic and Renal Functions by a Single New Substance Sodium Phenol tetra Iodophthalein Preliminary Report *J Am M Ass* 1926 lxxxvi 467

The sodium salt of phenoltetra iodophthalein an isomer of tetra iodophenolphthalein not only renders the gall bladder visible in the roentgenogram but stains the blood serum sufficiently for its detection after alkalization probably by a test similar to the Rosenthal test and is excreted by the kidneys in

sufficient quantities to permit its recognition colorimetrically in the urine after alkalization

Therefore if the substance can be obtained in sufficient quantities it may be possible to standardize the technique that cholecystography and tests of hepatic and renal function may be made simultaneously

MARCUS H. HOBART, M.D.

**Habbe E. and Smith L. A. Unusual Bile Duct Visualization by Roentgenograms of Barium Meal Report of a Case** *J Am Med Ass* 1916 lxxvi 4/6

In the case reported by the authors the intrahepatic ducts were filled by the barium meal, evidently through a spontaneous cholecystoduodenostomy, and were clearly visible in the roentgenogram

The authors believe that the bile ducts may be filled in a similar manner by the duodenal contents after meals, particularly when the patient lies down after eating. The retention of the barium in the ducts indicates that food material with its accompanying bacterial content must be present in the bile ducts at all times

Although in the case reported the marked abnormality has probably been present for five years it has caused no functional change so far as can be determined by the usual liver function tests

Such cases are rare, but a few have been reported in the literature

MARCUS H. HOBART, M.D.

**Cushing E. H. and Stout A. P. Gaucher's Disease with the Report of a Case Showing Bone Disintegration and Joint Involvement** *Arch Surg* 1916 xli 539

The purpose of this article is to present the clinical features of Gaucher's disease and to attempt to evaluate the results of splenectomy as a therapeutic measure

A review of the literature reveals only forty four authentic cases of the condition. Personal information of unreported cases allows the authors to summarize five others. Of these two cases which were treated at the Presbyterian Hospital, New York, are reported in detail

Gaucher's splenomegaly occurs most frequently in women and children. It is characterized by enlargement of the spleen, bronzing of the skin, anemia, and a marked hæmorrhagic tendency. The pathological picture is characterized by the presence in the spleen, liver, lymph nodes and bone marrow of large round or polygonal cells with one or more nuclei

The first case reported by the authors was that of a woman aged 29 years whose condition was diagnosed as Banti's disease and treated by splenectomy. After the operation the patient gained slightly in weight. There was no change in the number of red blood cells, but the white cells increased from 5,000 to 15,000. The postoperative record of the case covers sixty eight months

In the second case that of a woman aged 33 years the condition was accompanied by bone disintegration and joint involvement. Splenectomy was fol-

lowed by a gain in weight of 17 1/2 lb and an increase in the red cells from 1,300,000 to 3,910,000. Later the head and neck of the femur and the acetabulum and joint capsule were resected. The destruction of bone was greatest near the joint. The neck of the femur was quite soft and the bone seemed sandy in consistency. The authors believe that the gradual atrophy of the head of the femur erosion of the articular cartilages and disintegration of the joint were due to the multiplication of Gaucher's cells within the bone marrow

Splenectomy is the only treatment attended with any measure of success in Gaucher's disease but there is no indication that it effects a cure

EARL G. GARSIDE, M.D.

## MISCELLANEOUS

**Unger A. S. and Speiser, M. D. Congenital Diaphragmatic Hernia with a Report of Seven Cases with Autopsies** *Am J Roentgenol* 1926 xi 135

Diaphragmatic hernia are true or false depending upon the presence or absence of a sac. Those of the latter type constitute 87 per cent of congenital hernia. Diaphragmatic hernia occur most frequently through the foramen of Morgagni, the foramen of Bochdalek, and the oesophageal hiatus. They occur on the left side eight times more frequently than on the right side. The viscera found most frequently in such hernia is the stomach, but every abdominal organ except the genital organs, the bladder and the rectum has been discovered at least once in the thoracic cavity

The clinical picture of diaphragmatic hernia is very variable. In some cases symptoms begin soon after birth while in others there may be no symptoms and the condition may be discovered accidentally in adult life. Dyspnoea is a common complaint the degree of which depends upon compression of the lungs. Nausea or vomiting and abdominal pain or colic may occur. Preceding death in the cases of newborn infants, the breathing is very shallow, the cry is very weak, and cyanosis is present. In older persons the respiration is short and quick, and the voice may have a peculiar tone. In about one third of the cases reported hiccup occurred

The authors report seven cases in six of which an autopsy was performed. In the seventh case the condition was discovered accidentally in a roentgen examination for injury of the left humerus. Two of the subjects were newborn infants, two were children 1 year old, and two were adult males past the third decade of life

These cases exemplify the authors' classification. In cases of the first class death occurs at birth or shortly afterward. In those of the second class the child lives for a few months or years but has constantly recurring dyspnoea. In the third class are adults. Adults with the condition are generally healthy, but following a severe strain some of them go into shock and die suddenly. Others have no

*symptoms the condition being discovered during an abdominal operation or X ray examination*

E. L. G. GARSIDE M D

**Neuhof H Retroperitoneal Sarcoma (Adrenal Tumor?) with Hemorrhage Three Years After Operation** *Ann Surg* 19 6 LXXIII 190

Neuhof reports the case of a woman 30 years old with a history of appendectomy two years previously for recurring abdominal cramps of several months duration. After the operation she felt well for a few months but soon began to have epigastric fullness after meals. At the time of her admission to the hospital for the second time she had lost 15 lbs. in weight. Twenty four hours before her admission she was seized with a violent cramp like pain in the right lower quadrant of the abdomen which increased in severity and was associated with vomiting. The bowels moved with an enema. On examination a cystic mass was palpated in the mesial and right upper portion of the abdomen. This was about 20 cm in diameter smooth fixed tender and fluctuant. The overlying musculature was rigid but general rigidity was absent. The leucocyte count was 21,200.

An upper right rectus incision over the bulge revealed a large bluish mass apparently located in the

transverse mesocolon. When the overlying transverse mesocolon was incised a plane of cleavage was found through which the mass could be separated by blunt dissection from the pancreas the right kidney and the third portion of the duodenum. As it was impossible to free the encysted blood clot from the right kidney completely a portion of the upper pole was removed with the retroperitoneal mass. Gauze packing surrounded by a rubber dam was placed in the retroperitoneal space the remainder of the posterior peritoneum was sutured, and the abdomen was closed around the drain.

The removed mass which was spherical consisted of a thin confining membrane enclosing a blood clot. Tumor masses were scattered throughout the clot but the attached portion of kidney appeared normal. The microscopic diagnosis was angiosarcoma.

Deep X ray therapy was given for several months after the operation. The patient has gained 20 lbs and has remained in perfect health up to the present time two years after the operation. Although there was no microscopic evidence that the tumor arose from the adrenal the author is of the opinion that it was of adrenal origin because the clinical picture was very similar to that of an adrenal tumor with hemorrhage.

WILLIAM A. BRAUN M D

# GYNECOLOGY

## UTERUS

Clark, J. G. and Ferguson, L. K. A Cystogram Study of Cystocele and Prolapse *Surg Clin N Am*, 1926 vi, 79

Cystography is probably the most impressive and convincing method of showing the deformity of the bladder that occurs in cystocele and descensus and the degree of anatomical reposition of the bladder obtained by various operations in these cases. It furnishes a permanent and exact record which can be referred to and used as a standard in subsequent examinations and therefore will show which of the various operative procedures gives the most lasting results.

A plate is first made with the patient in the prone position. The catheter is then removed and a second plate is made with the vertical fluoroscope. The patient is then requested to empty her bladder completely and a second examination is made with the vertical fluoroscope for residual urine.

If any residual urine is found, a third vertical plate is made.

After the operation the procedure is repeated after an interval of from eighteen to twenty days, and when possible, a year or more after the patient's discharge from the hospital. The procedure is entirely harmless.

The authors report eight cases with pre-operative and postoperative cystograms showing the position and shape of the bladder. ROLAND S. CRON, M.D.

Gaenssle, H. The Results of Operation for Prolapse (Ueber Ergebnisse der Prolapsoperation) *Monatsschr f Geburtsh u Gynaek*, 1925 lxx 295

Suture of the pelvic floor is usually preceded by plastic work anteriorly and separate suture of the vesicovaginal septum. In cases of insufficiency of the sphincter of the bladder with urinary incontinence the sphincter is brought together with interrupted sutures. Because of the good results which have been obtained in this manner it has never been necessary to employ the Goebel-Stoeckel plastic operation on the pyramidalis. After a properly performed operation for prolapse, the hypertrophied portio will become normal in size without any further treatment.

In Sellheim's plastic operation on the pelvic floor the levators are sutured separately and over them the constrictor cunni is sewed in two layers and the skin is sutured separately. If the operation is not performed in the immediate premenstrual or post-menstrual period there is little bleeding. The technique is not particularly difficult. The operation is performed preferably under lumbar anesthesia. Follow up studies indicate that the results are better

in untreated cases of ante flexion and retro flexion than in those in which postural methods have been used. Consideration of the position of the uterus is not necessary.

By Sellheim's method, total prolapse may be operated upon as well as slight descensus. Ten per cent of the completely cured women have had repeated pregnancies; some of them have been delivered as many as four times. Careful management of the labor is necessary. If the head remains on the pelvic floor, forceps should be applied and a longitudinal incision should be made through the old scar and sutured immediately after labor. The author believes that a cure may be obtained in 90 per cent of the cases. THEODORE (G)

Violet and Michon. Adenomyomata of the Uterus and Ovaries (Les adenomyomes de l'uterus et des ovaires) *Gynec et obst* 19 5 vii 403

Adenomyomata of the uterine cornua and the round ligaments are discussed. A case is reported in which an adenomyoma appeared in the abdominal wall following ventral fixation by the round ligament. Adenomyomata of the subserous variety form the only true cysts of uterine origin. Interstitial adenomyomata are common. They occur diffusely beneath the mucosa, a condition called by the author "adenomyometritis" and as localized tumors apparently due to extension from the glands of the normal subjacent mucosa. They frequently penetrate to the peritoneal surface, causing fibrin deposits and the adhesion of neighboring structures (most frequently the rectum). The authors have found them associated with large uterine fibroids and in the form of true ectopic growths.

There are two general clinical types: the hæmorrhagic, associated with profuse metrorrhagia and the dysmenorrhagic with severe menstrual disturbances not relieved by ordinary measures. Adenomyomata of the pouch of Douglas are often included in the latter group. The authors have seen five cases and have collected 101. The symptoms may resemble those of advanced carcinoma (pain, loss of weight, etc.). Rectal examination alone gives findings that can be relied upon in the differential diagnosis. A case is cited in which a supravaginal hysterectomy was done but of course failed to give relief.

The authors report also a case of endometrial blood cyst of the ovaries and review the various theories as to the pathogenesis of this condition. They are inclined to accept Sampson's theory that it is the result of tubal regurgitation with the transplantation of endometrial fragments.

GOODRICH S. SCHAUFFLER, M.D.

**Von Kuettner O** Sarcomatous Degeneration of Uterine Myomata (Zur Frage der Umwandlung von Uterusmyomen in Sarkom) *Monatsschr f Geburtsh u Gynaek* 1925 LVII 277

The case reported by the author was that of a 54 year old woman who was admitted to the hospital with the diagnosis of peritonitis or ileus. Eleven years previously an examination had revealed what was believed to be a cyst the size of an apple in the left ovary. For several weeks the patient had noticed a rapid increase in the size of this tumor and four weeks previously had had an attack of acute pain in the left hypogastrium. The day before her admission to the hospital the pain had recurred and was associated with vomiting and difficulty in the passage of flatus.

Operation revealed instead of the expected ovarian tumor with a twisted pedicle a cystic tumor attached by a narrow pedicle to the atrophied uterus and containing about 2 liters of necrotic material mixed with bloody fluid.

Although the operation was difficult the patient left the hospital after sixteen days. Two months later a recurrence developed. The microscopic diagnosis was sarcomatous degeneration of a myoma.

In the discussion of this report Henke who examined the tumor in von Kuettner's case microscopically called attention to the relative infrequency of sarcomatous degeneration of myoma. Biermer stated that if the frequency of such degeneration were as great as is assumed by Bumm and Warnekros a considerably greater number of recurrences would develop after supravaginal amputation. Asch, Koerner, Fraenkel, Dienst and Mattias were of the same opinion. Mattias based his conclusion on 1200 autopsies made in cases of malignant tumors in which sarcoma was found in only twenty six (2 per cent).

Fraenkel called attention to the fact that some tumors considered myomata are sarcomata from the beginning. He reported a case in which an extirpated tumor was believed to be a myoma until a recurrence proved it to be a sarcoma. Even the infiltration of a tumor does not always prove its sarcomatous nature.

Koerner reported a case in which a sarcoma with numerous giant cells penetrated a myoma.

Dienst described a submucous myoma the size of a man's head in which the peripheral zone consisted of compact tissue while the central part contained cysts varying in size from that of a cherry to that of a goose egg and showed occasional areas of metaplasia of the tumor cells into cartilaginous tissue.

FLESCHE (G)

**Walther H W E and Peacock C L** Gonococcal Endocervicitis *South M J* 1926 LXI 202

In gonococcal endocervicitis amputation of the cervix and cauterization with the actual or electric cautery have been done but this treatment produces scar tissue which seriously interferes with subsequent labors. The authors have found that the gonococci may be effectively destroyed without in-

jury of the tissues by diathermy. They describe their technique in detail and report the results in twelve acute and twenty six chronic cases. The number of treatments was usually from two to fourteen.

The time of an average treatment was ten minutes. The average milliamperage was 500. The treatments were given at intervals of from two to four days until the smears were negative.

I EDWARD BISHKOW M.D.

**Becker C** Carcinomatous Degeneration of Heterotopic Epithelial Inclusions in the Uterus (Carcinomatöse Degeneration heterotoper Epithelien schliessend am Uterus) *Zentralbl f Gynaek* 1925, XLIX 2333

In the case of a 54 year-old nulliparous woman who had suffered from backache and intestinal catarrh six months previously the uterus was removed by supravaginal amputation because of fixed retroversion. Before the amputation could be performed the liberation of numerous adhesions was necessary. The anatomical examination revealed in the serosa of the pouch of Douglas on the posterior uterine wall several tumor masses which had the structure of glandular carcinomata and were apparently peritoneal metastases. The endometrium was entirely normal. A rectal carcinoma as the source of the smaller tumors was definitely excluded. This case is similar to cases described in the literature as fibro adenomatous sclerosis or sero-epithelial adenomyositis.

Becker believes it possible that the previous dysmenorrheic disturbances played a part in the etiology of the tumors (passive congestion during the always painful menstruation) that a curettage done five years previously may have caused the dissemination and implantation of endometrial epithelia in the cul-de-sac of Douglas and that atrophy of the tissues due to the menopause which immediately followed the curettage favored the occurrence of malignant degeneration in the implanted cells. Soon after the removal of the uterus a nephrectomy was necessary because of injury to the ureter leading to pyonephrosis. In the interval between the operations an inoperable carcinoma the size of an apple developed in the cervix.

FLESCHE (G)

**Clark J G and Keene F E** The Treatment of Carcinoma of the Cervix by Irradiation *Surg Clin N Am* 1926 VI 213

In the treatment of carcinoma of the cervix the authors have always limited themselves to the use of 100 mgm of radium element. In only a few cases have they combined X-ray therapy with the radium treatment. The radium is divided into one capsule of 50 mgm and four needles each containing 12½ mgm. Almost without exception the dosage has been 2,400 mgm hrs. The radium has been buried only in the carcinomatous crater or in addition the needles have been inserted into the tissues around the involved area.

In the past few years the application has been made under nitrous oxide-oxygen anaesthesia. The patient is told to report within six weeks and the decision as to a second application is made from the appearance of the disease area at that time. Frequently the treatment is not repeated because the carcinomatous area is found to have disappeared apparently completely.

The chief benefit from irradiation comes from the first dose. A very careful selection of cases is necessary since in certain types such as those with wide spread involvement of the base of the bladder, the rectum, or the uterosacral ligaments, radium in sufficient quantities to affect the carcinomatous process favorably will cause extensive necrosis, a rectal or vesical fistula, and very severe pain.

In about 65 per cent of the more advanced cases of carcinoma of the cervix the treatment produces a local healing of the process with temporary or permanent cessation of the bleeding and discharge. In about 15 per cent the application of radium seems to stimulate the malignant process to greater activity.

Statistics show that in early cases the results of radium treatment are equal if not superior, to those obtained by radical operation. In Clark's clinic, the radical operation for carcinoma of the cervix has not been performed during the past three years. In 214 cases treated during the period from 1919 to 1923 the disease was confined to the cervix in only thirteen of these thirteen cases, seven were treated with radium alone and six were treated by high cauterization of the cervix and the application of radium. In the first group a five year cure was obtained in two (28.5 per cent) while in the second group a five year cure was obtained in five (83 per cent). The authors believe that the combination of radium and the cautery is followed by much better results than the use of one or the other alone.

In many clinics the combined use of radium and deep X-ray therapy has been undertaken but the value of this treatment is still to be determined.

ROLAND S. CROW, M.D.

**Petit and Marion. Accidental Section of the Ureter During Hysterectomy for a Large Fibroid in the Right Broad Ligament. End to End Suture Over a Ureteral Sound. Abdominal Drainage. Result After Twenty Months.** (Section accidentelle de l'uretère au cours d'une hystérectomie pour gros fibrome inclus dans le ligament large droit. suture bout à bout sur une sonde urétérale. drainage abdominal. résultat vingt mois après.) *Bull. et mém. Soc. nat. de chir.* 1925 li 910.

During a hysterectomy performed by Petit the right ureter was accidentally cut about 8 cm. above its insertion in the bladder. The ends were approximated over a ureteral sound. Four fine catgut sutures, including all of the coats of the ureter, were introduced for coaptation, and between these were introduced four more including only the outer coat of the ureter and four to approximate the tissues

surrounding the two ends. The rest of the operation was so conducted that abdominal drainage was obtained from the area of the sutures.

On the seventh day after the operation the sound was removed by way of the bladder and on the fifteenth day the drain was removed. A small urinary fistula closed about the thirtieth day after the first ureteral catheterization. Although there was evidence of stricture in the region of the injury progressively larger catheters were used with success at repeated catheterizations over a period of twenty months. Kidney function remained unimpaired.

Marion points out that it is unusual for the ureter to remain permeable and the kidney function to remain unimpaired following such an injury. He cites a case in which damage due to a similar stricture was noted only after nineteen years. Marion favors Petit's procedure especially the repeated catheterization of the ureter.

GOODRICH S. SCHAUFLER, M.D.

### ADNEXAL AND PERIUTERINE CONDITIONS

**Shaw, W. The Fate of the Graafian Follicle in the Human Ovary.** *J. Obst. & Gynec. Brit. Emp.*, 1925, xxxii 679.

Only a small percentage of the graafian follicles found in the ovary at birth undergo ovulation. The majority become atretic. The large lutein cells of the corpus luteum are derived from the granulosa layer of the follicles. The paralutein cells develop from the theca interna layer. It requires about eight months for a corpus luteum to become converted into a corpus albicans. Atretic structures derived from the graafian follicles are the corpus atreticans, the corpus candicans, the corpus fibrosum and the corpus testiforme.

ROLAND S. CROW, M.D.

**Solmaru. Intraperitoneal Hemorrhage from the Rupture of a Lutein Cyst of the Ovary.** (Rupture intrapéritoneale de kyste luteinique de l'ovaire.) *Bull. Soc. d'obst. et de gynéc. de Par.* 1925, xiv 653.

Severe intraperitoneal hemorrhages may result from other conditions than ectopic pregnancy. In cases reported in the literature the causes included the rupture of a graafian follicle, the rupture or expulsion of a corpus luteum, the rupture of an ovary, a primary cyst, a cyst with a twisted pedicle, or paracystic varices, a malignant tumor, and chronic oophoritis.

Solmaru reports a case of rupture of a tubo-ovarian cyst.

ALBERT F. DE GROOT, M.D.

**Hiltzanides, E. Rupture of a Corpus Luteum Cyst Simulating Rupture of an Ectopic Pregnancy.** (Rupture d'un kyste du corps jaune de l'ovaire simulant une grossesse extra-utérine rompue.) *Bull. Soc. d'obst. et de gynéc. de Par.* 1925 xiv, 656.

Contrary to the studies of Forssner and others which tend to show that severe ovarian hemorrhage occurs only as the result of ectopic pregnancy,



the author believes that such a hæmorrhage is often due to the rupture of a graafian follicle or a lutein cyst simulating an ectopic pregnancy. To prove his contention he cites an illustrative case.

A widow 45 years of age who was sterile and had never had an abortion was seized with pain in the lower part of the abdomen. This pain was very severe and persisted for ten days. For the last eighteen months before the patient consulted the author she had suffered from severe metrorrhagia which occurred twice monthly and was associated with hot flashes and headache.

On examination the patient was found pale and thin. Abdominal tenderness was present but there was no rigidity. The clinical signs of pregnancy were absent. In the cul de sac was a mass suggesting a pelvic hæmatocoele.

At operation the uterus and tubes were removed with a large clot which filled the pouch of Douglas. The source of the hæmorrhage was found to be a

tear 1 cm long in a cyst of the right ovary. Microscopic examination showed the cyst to be lined by lutein cells. No fetal elements could be found.

ALBERT F. DE GROAT, M.D.

Pfeiffer D. B. and Smyth C. M. Jr. An Ovarian Cyst Twisted on Its Pedicle with a Carcinoma of the Sigmoid Discovered Incidentally. *Surg Clin N Am* 1926 vi 207.

In a case of ovarian cyst twisted on its pedicle the authors found after removal of the cyst a typical napkin ring carcinoma of the sigmoid. The growth was readily mobilized with its regional mesentery and brought out through the abdominal wall in the manner described by Mikulicz. At the same time the ileus was relieved. No attempt was made to create a sphincter. In this procedure there is no danger of sepsis from the primary operation as the bowel is not opened until it is withdrawn from the abdomen.

ROLAND S. CROW, M.D.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Falls, F H The Use of the Vaginal Stethoscope in the Early Diagnosis of Pregnancy *Am J Obst & Gynec*, 1926, xi, 309

The vaginal stethoscope advances the time of hearing and counting the fetal heart tones about four weeks therefore making this sign precede quickening It is of aid in the diagnosis of placenta prævia death of the fetus in early pregnancy, mole pregnancy and pregnancy complicating uterine fibroids Fetal movements as well as fetal heart tones can be heard vaginally in the early months of pregnancy The use of the vaginal stethoscope is of particular value in the cases of women with a very thick abdominal wall which renders auscultation difficult

E L CORNELL M D

Bridgman E W, and Norwood, V Pulmonary Tuberculosis and Pregnancy *Bull Johns Hopkins Hosp* Balt 19 6 xxxviii, 83

In a series of 14,000 cases of pregnancy in an equal number of white and negro women many of whom were multiparæ the obstetrical cards showed that 134 of the patients were grouped as having pulmonary tuberculosis in one or more of its various forms This revealed no increase over the expected incidence of pulmonary tuberculosis and the routine physical examination disclosed no alarming incidence of tuberculosis during the period of gestation There was no evidence that pregnancy in any way promoted the occurrence of the infection In fifty cases the presence of tuberculosis could not be confirmed

In seventeen cases the history and signs pointed conclusively to pulmonary tuberculosis in an inactive stage at the time of delivery These women had the household duties and the care of families to a greater or less extent and belonged to the class which, in general, is unfavorable for the care of tuberculosis In spite of this fact, seven of the ten patients whose after histories are known were in excellent condition from six months to five years after delivery It is probable that the wear and tear of their lives would have produced such flare ups whether they had borne infants or not The authors believe that pregnancy was often coincidental

In thirty one cases of active tuberculosis during pregnancy and at the time of delivery there were four spontaneous premature births, two deaths and two spontaneous abortions in the sixth and fourth months

Twenty three babies were discharged at the end of two weeks in fair condition Their average birth weight was 2 808 gm, which is definitely below the average for the service and 400 gm below the

average weight of the babies whose mothers had quiescent tuberculous lesions

In the presence of active tuberculosis pregnancy is followed by the death of the mother within one year in fully one half of the cases The prognosis is best in cases of pregnancy with a fibroid type of tuberculosis which are given suitable treatment In cases of casclous lesions with no antituberculosis therapy the condition is apt to be fatal Even in the cases of patients in whom the condition does not terminate fatally pregnancy is deleterious to the pulmonary condition

There were twelve cases of active tuberculosis in which a therapeutic abortion was done Of these twelve patients three could be followed for only two weeks after the operation and therefore are not considered in this report All of the abortions except one were induced between the second and third months of pregnancy In the one exception it was induced in the sixth month Of the remaining nine patients, two (22 per cent) were living and in better health two were living but not in better health and five patients (55 per cent) were dead at the end of 1 year

A comparison of the results in this group with those in a similar group in which abortion was not induced suggests that the operation renders the prognosis less favorable

Abortion was induced also in the cases of seven patients with inactive tuberculosis All of these patients were doing well at the end of a year, as were also those with inactive tuberculosis who were allowed to go to term

Nineteen patients were suffering from some other disease besides tuberculosis In this group the prognosis was poor When the tuberculosis was inactive, the result depended upon the severity of the concomitant disease Besides the type of the lesion it was the amount of work and rest in daily life that seemed to control the prognosis

In the case of a pregnant woman in whom active tuberculosis is found, the tuberculosis should be treated to the utmost and the pregnancy disregarded Rest preferably in a sanatorium, is the treatment for tuberculosis Artificial termination of pregnancy is not indicated

The infantile mortality in the first year is over 50 per cent Even if the infants live longer, many of them develop tuberculosis The intimate contact between mother and young baby nearly always results in infection of the child If there is any sign of activity of the tuberculosis in the mother, the child should be taken away and brought up elsewhere until the mother's lesion has become quiescent The strain of nursing the baby is obviously harmful to the mother

ROLAND S CROW, M D

**Heynemann T** The Differential Diagnosis Between the Kidney of Pregnancy and Chronic Nephritis in Pregnancy and Between Eclampsia and True Uræmia (*Die Differentialdiagnose zwischen Schwangerschaftsmere und chronischer Nephritis in der Schwangerschaft und zwischen Eklampsie und echter Uræmie*) *Zentralbl f Gynaek* 1925 xlv 2290

The differential diagnosis between eclampsia and the true uræmia of pregnancy can be made with considerable certainty. Most important is the repeated elimination of the blood urea and indican. An amoniacal odor to the breath and the absence of an increase in the specific gravity of the urine when the quantity of urine is greatly increased justify the diagnosis of true uræmia. Uræmia is suggested also when there is a history of nephritis.

Pregnancy complicating chronic nephritis often gives the picture of a renal affection of pregnancy. There is no sure differential sign. The diagnosis of the kidney of pregnancy is made too often as this condition also may be associated with a high increase in the blood pressure, the appearance of erythrocytes in the urine, and even with albuminuric retinitis. If these symptoms appear in the second half of pregnancy, a diagnosis of the nephritis of pregnancy is justified, whereas if they appear in the first months of pregnancy the condition must be considered a chronic nephritis. Signs such as hypertrophy of the left ventricle and albuminuric retinitis are to be similarly interpreted. **Hess (G)**

**Rockwood R, Mussey R D and Keith N M**  
A Clinical Study of Nephritis in Cases of Pregnancy *Surg Gynec & Obst* 1926 xlv 342

Many of the toxæmias of pregnancy are associated with nephritis and can be classified as are other types of nephritis not necessarily occurring in pregnancy. The classification of Volhard and Fahr is used.

The authors review the course of fifty seven cases during pregnancy, and the fate of the mothers and infants over a period of three years. They state that both nephritis and toxæmia of pregnancy seem to be general diseases affecting the cardiorenal vascular system as a whole.

When the toxæmia of pregnancy is classified by the method which Volhard uses for nephritis, a marked difference in the end results is seen. This difference allows the physician to make a more accurate prognosis both as to the mortality among the mothers and as to the fate of the child in subsequent pregnancies.

**Brannan D and Cohen M** Necrosis of the Corpus Luteum of Pregnancy *Surg Gynec & Obst* 1926 xlv 228

The authors report two cases of necrosis of the corpus luteum of pregnancy. The first was that of a primipara who suffered from pernicious vomiting in the third month of pregnancy. The illness was acute and progressive, terminating in death forty-four days after its onset. The hyperglycæmia and

glycosuria were doubtless the result of the liberal therapeutic use of glucose solution. The acidosis as revealed by the urinalysis, was obviously due to starvation. Albuminuria was not marked.

Besides pulmonary oedema, the postmortem examination revealed little of significance, so far as the gross findings were concerned. Microscopically, the most important lesion was extensive coagulative necrosis of the corpus luteum. Certain of the lutein cells near the blood vessels were not greatly altered and seemed to be somewhat protected by their position. The liver showed fatty changes but not the usual central necrosis. The kidneys presented very definite parenchymatous degeneration but nothing especially characteristic.

In the second case also pernicious vomiting occurred in early pregnancy. The patient was a multipara in the third month of gestation. When she entered the hospital after two weeks of almost constant vomiting she had lost weight and showed evidence of dehydration.

Jaundice and a high non protein nitrogen content in the blood were unusual features worthy of note. The rapid pulse and the liver were apparently terminal phenomena. The high red and white blood cell counts were due no doubt to concentration of the blood from the loss of fluids. The leucocytosis was possibly associated in part at least with the acute endometritis. The slight hyperglycæmia and glycosuria as in the first case are to be attributed to the therapeutic use of dextrose.

With the exception of oedema of the lungs and an adenomatous goiter the autopsy findings were not noteworthy.

The pathological findings in the liver while not extensive were definite. There was a moderate degree of fatty change in the central cells and in occasional lobules one or more necrotic cells were observed. The liver was also oedematous. The cause of the jaundice remains obscure as the liver damage was not sufficient to explain it.

By far the most marked lesion found was the massive necrosis of the corpus luteum. Rather extensive liquefaction of the dead lutein cells in this case perhaps indicated necrosis of longer duration than in the first case. As in the first case the necrosis represented an uncommon local degeneration. No other ovarian tissue was affected in either case but occasional capillaries of each corpus luteum were evidently injured slightly.

These two very similar cases of pernicious vomiting of pregnancy, both terminating in death revealed for the most part a similar diseased condition especially of the corpus luteum. Both presented the rather characteristic fatty changes in the liver but in neither was the liver enlarged. Only in the second case were there necrotic central liver cells and these were not numerous. Central necrosis of the liver though often observed is not a constant finding in this disease. The frequently found necrosis of the renal tubular epithelium was absent in both cases. The lesions of the kidneys were not characteristic.

being unlike the degenerative changes occurring in other acute infectious and toxic diseases

CARL H DAVIS, M D

**Stander H J, and Peckham, C H Basal Metabolism in the Toxæmias of Pregnancy** *Bull Johns Hopkins Hosp* Balt 1926 xxxviii 227

The authors have noticed in the latter half of pregnancy a definite elevation in the basal metabolic rate and a return to normal at about the tenth day of the puerperium. The return is gradual and steady.

In pre eclamptic toxæmia the basal metabolic rate is slightly higher than in normal pregnancy. It returns to the normal level at about the fifteenth day of the puerperium.

Nephritic toxæmia is associated with a basal metabolic rate of about + 33 before delivery. This figure is slightly higher than that for the pre eclamptic group. In nephritic toxæmia the basal rate tends to remain elevated for a longer time during the puerperium than it does in period before eclampsia occurs.

The basal metabolic curve for the eclamptic group is almost identical with the nephritic curve.

Basal metabolism determinations are of little aid in differentiating between the various types of toxæmias of late pregnancy.

In normal pregnancy as well as in the different toxæmias of pregnancy, there is some factor or factors resulting in an increase in the basal metabolic rate as term is approached, a gradual return to normal ensuing during the puerperium. It is probable that such a factor or factors may be related to the growth of the fetus as well as to a slight increase in the activity of the thyroid gland.

ROLAND S CROW, M D

**Allen W M Interagglutination of Maternal and Fetal Blood in the Late Toxæmias of Pregnancy** *Bull Johns Hopkins Hosp*, Balt 1926 xxxviii 217

The author states that while the interagglutination theory may explain the occurrence of eclampsia in pregnancy and its greater frequency in multiple pregnancy, a relationship of interagglutination to the frequency of eclampsia in primiparæ and in hydramnios is difficult to visualize and the theory cannot possibly explain the occurrence of eclampsia with hydatid mole since in the majority of instances of the latter abnormality no fetal blood is present. Attention is called also to the fact that the fetal red blood cells are the important element since the fetal serum is generally weak in agglutinins. Although the sera of 21 per cent of a series of 479 women agglutinated the infant's corpuscles the fetal serum never agglutinated the maternal cells.

The author studied the iso agglutination characteristics of the blood of 375 normal and 104 toxæmic women and their newly born infants.

There was no evidence that incompatibility was more frequent in toxæmic than in normal gestation. Incompatibility between the blood of the mother and the blood of the infant was present in 20.8 per

cent of 375 normal pregnancies and 21.1 per cent of 104 toxæmic pregnancies.

There was no evidence of specific immunization of the mother against fetal corpuscles.

The author believes that the discrepancy between the findings of this and previous work is probably accounted for by the size of the series studied. With a small number of cases the percentage of error and likelihood of coincidence are very great.

The study reported yielded no evidence that the late toxæmias of pregnancy have their origin in iso agglutination phenomena. ROLAND S CROW, M D

**Irwin J C The Role of Cæsarean Section in the Treatment of Eclampsia** *California & West Med* 1916 xiv 208

The author presents data which indicate that, as compared with more conservative procedures, cæsarean section is an unfavorable procedure in the treatment of eclampsia, the mortality rate following the operation being relatively high.

Cæsarean section is indicated only in well advanced pregnancy with no cervical dilatation in cases in which other attempts at delivery have failed, and in cases of contracted pelvis.

The abdominal hysterotomy should be chosen for cases at or near term, and the vaginal hysterotomy for those of eclampsia before the seventh month of gestation.

The best results so far reported have been obtained with the conservative treatment of Dublin and Stroganoff. The intravenous injection of 20 c cm of 10 per cent magnesium sulphate every four to six hours supplemented by the administration of a saline cathartic or simple enema is a comparatively new procedure but most effective. It is based on the theory that the convulsions and restlessness are due to oedema of the brain. The magnesium sulphate, acting as a diuretic, removes the oedema, and acting as a sedative, quiets the restlessness. After its use the blood pressure is lowered, the oedema disappears, and there is marked improvement in the patient's general condition.

Since this procedure has been used in the Los Angeles General Hospital it has been unnecessary to resort to cæsarean section in any case of eclampsia treated in that institution.

MAGNUS P URNES, M D

## LABOR AND ITS COMPLICATIONS

**Lankford B The Preparation of the External Genitalia for Delivery with Iodine Alcohol** *A Report of 100 Cases So Treated, with the Bacteriological Results* *Am J Obst & Gynec*, 1926 xi 219

In 100 obstetrical cases in which the patient was prepared for delivery with iodine alcohol swabs were taken from the greater and lesser labia and from the skin near the vulva. None was taken from directly over the anus although that area was included in the preparation. Nine positive cultures were obtained.

In seven staphylococci were found in one colon bacilli and staphylococci and in one colon bacilli alone. Not one of the patients with a positive culture had a febrile temperature and fever occurred in only three of the 100 cases.

Forty five of the patients were primiparæ. Thirty three had one rectal examination, twenty seven had two, fifteen had three, seven had four, two had five, three had six and two had seven. Thirty eight had one vaginal examination in addition to any rectal examinations they may have had, seven had two vaginal examinations and one had three. The forceps were used thirty eight times.

The author reviews also 100 obstetrical cases in which the patient was prepared for delivery by shaving and scrubbing with soap and water followed by the application of bichloride of mercury or lysol. This group of patients were delivered in the same hospital as the others and during the same period by a number of attending physicians, the hospital being an open one. Fifty five were primiparæ. Thirty eight had one vaginal examination, nine had two, eight had three and two had five. Seventeen had one rectal examination and five had two. The forceps were used in fifteen cases. Lacerations occurred in forty three and fever in fourteen.

E. I. CORNELL M.D.

**Katz H.** Difficulties in Labor in So Called Partial Retroflexion of the Uterus and Their Management in Cases of Advanced Pregnancy. (Ueber die Geburtstoeurungen bei sogenannter Retroflexio uteri partialis und ihre Behandlung in Faellen weit vorgeschrittener Schwangerschaft). *Monatsschr f Geburtsh u Gynaek* 1925 lxx 147.

The author applies Wertheim's term, partial retroflexion of the uterus, only to cases in which with primary retroflexion of the organ the entire fundus or one horn remains incarcerated in the true pelvis. Cases of this type are very few, especially in the advanced stage of pregnancy. Katz reports a case seen in the First Gynecological Clinic in Vienna.

The patient was a 36 year old para v. In contrast to her previous pregnancies, this pregnancy had been associated with considerable pain in the lower abdomen, nausea and vomiting, and she said that the child was always low down, never up. When sitting she had the feeling that the contents of her abdomen were being drawn downward, and when standing or bending she felt as if the child would come out through the rectum. She complained of dyspnea.

Examination revealed slight cyanosis of the lips and marked edema of the eyelids and legs. The urine showed 2 per cent albumin, cylinders and erythrocytes. Albuminuric retinitis was present. On external examination nothing abnormal could be palpated. The child's head appeared to lie on the right side of the fundus. The buttocks could not be made out satisfactorily. On internal examination the cervix could not be reached.

As the fetal heart tones became weaker two days after rupture of the membranes, the attempt was

made to introduce a Colpeurynter. This was unsuccessful as it was impossible to introduce the balloon into the external os above the symphysis pubis without force.

The nature of the condition was revealed when the patient was examined under narcosis. As the examining finger entered the shortened cervical canal through the external os with two fingers dilatation it met an obstruction in the region of the posterior part of the internal os. This obstruction, a very hard transverse spur about 1 1/2 cm high, extended into the lumen of the cervical canal. The anterior portion of the internal os was soft and dilatable. Over the spur the examining finger passed into a deep pouching of the posterior wall of the uterus which extended down into the posterior vault of the vagina and was strongly adherent to the underlying tissues.

The diagnosis was pouching of the posterior uterine wall as the result of adhesions in a primarily retroflexed uterus.

Because of the occasional failure of the fetal heart tones, it was decided to terminate the pregnancy by removing the uterus at laparotomy. This decision seemed justified also because it appeared that the uterus was diseased and unfit for subsequent pregnancies and because the patient had a weak heart and already had several living children. In order to prevent all danger of peritonitis, the uterus was removed unopened. A complete recovery resulted in the usual length of time. CONRAD (G)

**Stone E. L.** Dilatation of the Cervix Uteri by Means of the Hydrostatic Balloon. *Am J Obst & Gynec* 1926 xi 314.

The best means of artificially dilating the cervix of the pregnant uterus has never been established on a perfectly satisfactory basis. As a consequence the operation is performed in many different ways and has been the subject of considerable controversy.

The author finds that the hydrostatic bag is applicable to the greatest number of case types, serves well in complications of pregnancy after the fourth month, most accurately simulates the physiological mechanics, and best assures the welfare of the mother and child. E. L. CORNELL M.D.

**Kellogg F. S.** The Treatment of Placenta Prævia Based on a Study of 303 Consecutive Cases at the Boston Lying In Hospital. *Am J Obst & Gynec* 1926 xi 194.

From a study of 303 consecutive cases of placenta prævia the author draws the following conclusions:

All cases of central and partial placenta prævia are best treated by low abdominal cesarean section, whether the baby is viable or non-viable, living or dead.

Marginal placenta prævia is best treated by Voorhees bag induction.

In the cases of moribund or very sick patients with placenta prævia rest should be given, bleeding should be controlled by whatever methods necessary, including tight packing of the cervix and vagina and

pressure over and above the fundus, a transfusion should be given, operation should be performed when the pulse rate and pressure have reacted, and another transfusion should be given postoperatively. An effort should always be made to determine as nearly as possible how much blood has been lost in order that the same amount may be replaced. A direct transfusion is probably better than the transfusion of citrated blood if time, apparatus, and knowledge of the technique permit. Otherwise a simple citrate transfusion should be given immediately since unquestionably a quick, well done citrate transfusion is superior to a poor direct transfusion.

The author believes that in many cases a hysterectomy should be performed following section. The advisability of this operation depends upon the risk of sepsis as indicated by the history, the occurrence of persistent bleeding after the section, and the patient's number of dependent children. If the woman has several dependent children and it appears that a hysterectomy would improve her chances of health, the operation should be done.

POLAK in the discussion of this report, stated that partial placenta previa has been treated with success by waiting and vaginal packing, the mortality in such cases being reduced far below that in cases treated by the introduction of a bag or bipolar version. When there is an area of bleeding uterus alongside the placenta control of the bleeding follows rupture of the membranes and firm packing and delivery will occur spontaneously. Polak agreed with Kellogg in regard to cesarean section in cases of central placenta previa in which the amount of blood lost has not been great, the patient is in good condition and the condition of the cervix is good.

PORTER called attention to the fact that to increase the blood pressure by a transfusion before closing the opening through which the blood is lost is usually a dangerous procedure.

E. L. CORNELL, M.D.

## PUERPERIUM AND ITS COMPLICATIONS

Colebrook L and Fry R. M. Some Laboratory Investigations in Connection with Puerperal Fever. *Proc Roy Soc Med Lond* 1926 xix Sect Obst & Gynec 31.

*Streptococcus hemolyticus* is the causative factor in the majority of septicæmias and also predominates in localized puerperal infections. In non septicæmic febrile cases an almost pure culture of this organism is obtained from the cervical canal. The organisms most frequently found in the very mild cases are diphtheroid bacilli and staphylococci.

The presence of a distinct *streptococcus* of puerperal fever has not yet been demonstrated. With regard to the possibility that puerperal infection may have its source in the vagina or rectum the authors state that the *streptococcus hemolyticus* can rarely be cultivated from the rectum of normal women and does not occur in the vagina. Its occurrence is most common in the upper respiratory

tract. The non-hæmolytic *streptococcus* is easily killed by leucocytes and therefore gives rise to little trouble.

Because of the presence of a leucocytosis, the resistance of women in and just after labor tends to be higher than that of healthy adults generally. This leucocytosis protects against infection in the most dangerous period, i.e. the first six hours after labor. Therefore, in suspected cases of puerperal infection, a leucocyte count should be made immediately after labor, and if it is below 12,000, a leucocytosis should be induced by an injection of nuclei.

The factors which determine whether an infection will remain localized to the pelvis or develop into a blood infection are (1) the virulence of the infecting *streptococcus* upon human blood and the human organisms, (2) the magnitude of the infection and the local condition at the site of infection, and (3) the patient's resistance.

Puerperal septicæmia may be regarded as a disease of leucocytes. Knowledge of the number of bacteria per cubic centimeter of blood is necessary to determine the treatment to be adopted and to judge as to the prognosis.

As treatment the authors advocate injection into the uterus of glycerine, hypertonic salt solution or Dakin's solution for the establishment of a continuous flow through the infected tissues to prevent the stagnation of serous and tissue fluids. They recommend also blood transfusion and the use of arsenical drugs of the neosalvarsan type.

MAGNUS P. URNES, M.D.

Hillips H. J. The Treatment of Puerperal Infection by Intra Uterine Injections of Glycerine. *Proc Roy Soc Med, Lond*, 1926 xix, Sect Obst & Gynec 26.

A lacerated cervix with an actively suppurating vagina teeming with micro organisms may easily infect the uterine wall or the endometrium.

The spread of an acute local infection may be prevented by promoting a flow of lymph through the uterine wall into the uterine cavity.

Very satisfactory results have been obtained with glycerine which is a powerful tissue dehydrant, remains in contact with the tissues for a considerable time because of its viscosity and can be delivered slowly and evenly over the interior surfaces of the uterus.

Gynecological preparation is given with attention to individual lesions and cleansing of the cervix and cervical canal. A 10 c.c.m. syringe to which a No. 6 soft rubber terminal eyed catheter is attached is filled with pure glycerine. The catheter is pushed up to the fundus and the glycerine slowly injected. Sterile gauze is tied to the free end of the catheter which is pushed into the vagina, the gauze protruding beyond the vulva. After six hours the catheter may be removed by traction on the gauze.

This injection treatment is given once or twice daily and repeated until all signs of active inflammation have subsided.

**Willan R J** A Clinical Lecture on Diagnosis by Pyelography *Brit M J* 19 6 1 409

Pyelograms are best made with the patient on the table on which the catheterization is done. A pyelogram should never be made with the patient under general anesthesia. A 13.5 per cent solution of sodium iodide is used as the contrast medium.

Following a review of the normal anatomy of the kidney Willan describes the pathological changes which cause an alteration in the pyelogram.

Normally the calyces are grouped into three main divisions: the upper, the middle and the lower and the solid medullary cone projects into the pelvic calyx. The club shaped outer end of the calyx is indented by the medullary cone.

In pyelonephritis there is absorption of the renal pyramid resulting in a knob like calyx in the pyelogram. This is especially marked in hydronephrosis.

Cases of nephroptosis which show a cupping of the calyces in the pyelogram should be treated medically as in such cases there is no back pressure. In cases showing a knobbing of the calyces an obstruction is present and nephropexy may be found necessary.

In congenital cystic kidneys the pyelogram reveals marked enlargement of both the renal pelvis and the calyces.

In tuberculosis of the kidney an abscess is usually formed and may rupture into a calyx. The contrast substance injected into the kidney pelvis gains entrance to the abscess cavity producing a shadow some distance from that caused by the pelvis and calyces.

A hypernephroma invading one or the other pole obliterates the calyces at that pole.

A diagnosis of essential hæmaturia is justified when the urine contains blood but no pus or casts and the blood pressure, bladder and pyelogram are normal.

The author reports seven cases supplementing the histories with pyelograms. **ALTOW OCHSNER M D**

**Hinman F and Morison D M** Experimental Hydronephrosis. Arterial Changes in the Progressive Hydronephrosis of Rabbits with Complete Ureteral Obstruction. *Surg Gynec & Obst* 1926 xlv 209

In experiments performed by the authors on rabbits the left ureter was double ligated and divided and the animals were killed after from seven to seventy days. Two animals were killed at a time. In one only an arterial injection was made and in the other the arterial injection was combined with injection of both ureters.

The first injection fluid used consisted of four parts of celliodin solution to 100 parts of acetone deeply tinted with alkann. This solution was injected at a pressure of 600 mm Hg. After maintenance of the pressure for ten minutes a twenty part celliodin solution was substituted and the pressure then kept between 400 and 500 mm Hg for fully twelve hours. During the entire process of injection the specimen was kept immersed in water.

When it was desired to obtain pelvic and arterial casts the ureters were injected with a twenty part colorless solution of celliodin at a pressure of about 80 mm Hg.

To ensure complete setting of the celliodin injection mass the specimen was kept under water for fully twenty four hours positive pressure being kept up at the points of injection. At the end of that time the specimen was carefully skinned and corroded in pure hydrochloric acid. After corrosion for from twenty four to forty eight hours the celliodin casts were washed free from the digested tissues with a stream of water.

These studies showed that the arterial circulation of the rabbit's kidney is distributed in two different planes within the parenchyma in relation to the pelvis of the kidney. The main subdivisions of the renal artery pass around circumferentially whereas the finer branches are distributed radially to the cavity of the pelvis.

With the production of hydronephrosis the arterial circulation undergoes two phases of alteration. The first phase which occurs at the onset is relatively short and appears to be due for the most part to a purely mechanical interference. In the second phase which soon supervenes there is in addition to the mechanical interference but consequent upon it a reduction of circulatory function which accelerates the development of hydronephrosis until complete atrophy results.

When ureteral obstruction occurs the renal pelvis dilates and this dilatation produces progressive compression of the enveloping parenchyma. Since the finer arterial branches traverse the parenchyma in a direction radial to the cavity of the pelvis they are subjected very early to compression in their long axes and consequently become tortuous and foreshortened.

On continued obstruction the organ increases in circumference. Consequently all structures pursuing a circumferential course through the parenchyma are subjected to a process of stretching or lengthening. Since the arteries are elastic tubes they become attenuated and their lumina become smaller. There is then a reduction in the blood supply leading to ischæmia, loss of tissue tone and progressive atrophy. **HARRY W. PLAGGEMEYER M D**

**Hinman F and Veckl M** Pyelovenous Back Flow. The Fate of Phenolsulphonaphthalein in a Normal Renal Pelvis with the Ureter Tied. *J Urol* 1926 xv 267

The authors state that under gradually increasing pressure in the renal pelvis a back flow of the pelvic contents into the renal vein occurs and the back pressure producing it is less than the excretory pressure. When this has once been established it will continue under lower pressure.

In experiments on rabbits 2 c cm of phenol sulphonaphthalein was injected very slowly into the renal pelvis and the ureter was ligated. Three of these animals were sacrificed after twenty four hours.

three after forty eight hours, two after ninety six hours, and three after one hundred and sixty eight hours

In each group the bladder was catheterized at the end of twenty four and forty eight hours and the amount of dye estimated. The animals were then killed and the dye remaining in the pelvis was estimated. It was found that practically all of the dye disappeared from the pelvis within four days and that very little was left after two days. These findings indicate that an active flow of dye occurred through the completely tied off renal pelvis.

In conclusion the authors state that the content of a closed hydronephrosis is neither cumulative nor stagnant, but undergoes a continuous change, fresh material being secreted by the kidney and the excess being removed by an active reabsorption which occurs mainly through pyelovenous back flow.

J SYDNEY RITTER, M D

Bird C E and Moise, T S. Pyelovenous Back Flow. *J Am Med Ass*, 19 6 lxxxvi 651

The authors have repeated in a modified manner the experiments of Hinman and Lee Brown relative to pyelovenous back flow. Their results show that, in the dog's kidney under conditions of gradually increasing intrapelvic pressure ranging from 10 to 100 mm Hg, aqueous solutions and suspensions of India ink in physiological sodium chloride solution pass readily from the renal pelvis into the collecting tubules through the convoluted tubules and the loops of Henle into Bowman's capsules.

Hinman and Lee Brown state that injection of the deeper renal tubules is impossible by way of the ureter, even when a pressure approximating 400 mm Hg is used. The phenomenon which they designate as 'pyelovenous back flow' they believe occurs under conditions of moderately increased intrapelvic pressure both in the living and in the recently removed kidneys of sheep, rabbits and dogs. The authors think it more likely that if a back flow of pelvic contents occurs, the ruptures allowing the flow take place in the areas of apposition of the small tubules of Henle's loops and the convoluted tubules with the large straight and arcuate veins. Their experiments do not support the conception of a true pyelovenous back flow. JOHN G CHEETHAM M D

Schwartz J. Polycystic Disease of the Kidneys—Report of Six Cases. *N York State J Med* 1926 xvi 231

Schwartz defines polycystic disease of the kidneys as a congenital malformation in which generally both kidneys show a conglomeration of cysts separated by fibrous septa. The condition was found sixteen times in 10,000 autopsies and ten times in 2,429 autopsies. Of the author's six cases, five were those of females and in only three was the diagnosis established clinically. One of the patients, a fully developed infant born at full term, died an hour after birth. This child had a large abdomen with a tumor the size of an orange in each flank. Its mother had had two

other children, one of which died from the same condition.

The author's second case was that of a woman 67 years of age who had been treated two years previously for nephritis and died of uræmic coma two days after her admission to the hospital. At autopsy, two large polycystic kidneys were found.

The third case was that of a woman 47 years of age who complained of fever and chills. Examination revealed two irregular masses the size of oranges, which corresponded to the kidneys. The urine contained albumin, hyaline and granular casts, pus, and blood. Puncture of the cysts was followed by recovery, but the patient died six months later of uræmia.

Case 4 was that of a man 61 years old who had a large mass in the right side of the abdomen, extending from the ribs to the iliac crest. The urine contained no casts or blood, but showed a 12 per cent sugar content. At exploratory operation, both kidneys were found to be polycystic. The patient died a few hours later from gas bacillus infection, but no organisms were found by culture.

Case 5 was that of a woman 44 years of age who complained of pain in the lumbar region, headache, nausea, vomiting, fever, and a tumor mass on each side corresponding to the kidney. The urine contained albumin, casts, blood and pus. The patient died three weeks after her admission to the hospital.

The sixth case was that of a 46 year old woman with headache, nausea, and multiple abscesses, fever, and two large tumors in the abdomen. The urine showed no casts. The patient died of uræmia one week after her admission to the hospital. Autopsy revealed two large cystic kidneys.

Polycystic disease of the kidneys has been attributed to neoplasms and retention but the theory that it is a congenital condition has been most generally accepted. It has two stages, tumor and nephritis.

Bilateral tumors corresponding to the kidneys, hypertension and signs of nephritis are pathognomonic. The diagnosis may be confirmed by means of a pyelogram.

The prognosis is grave. After the appearance of kidney insufficiency the decline is rapid. If there are no symptoms the patient should have good care but should be let alone.

BENJAMIN F. ROLLER, M D

Kilbane E F. Renal Sepsis Associated with Manic Depressive Insanity. *Am J Med Sc* 1926 clxxi 433

In reporting a case of renal sepsis associated with manic depressive insanity, Kilbane emphasizes the importance in all cases of mental disturbance of a complete physical examination for the discovery of some focus of infection or disease which might be responsible for the mental condition.

There is no doubt that in the author's case the mental disturbance was due directly to the renal sepsis for after the removal of the diseased kidney



the manic depressive insanity which had been present for over nine months cleared up entirely in nine days  
J SYDNEY RITTER M D

**Medlar E M Renal Tuberculosis Clinical and Experimental Wisconsin M J 1926 xiv 59**

Medlar believes that renal tuberculosis as seen by the practicing physician is a very late stage of the condition. He studied twenty six cases in the early stages before extensive destruction had occurred and at the same time made a careful search for healed lesions. In all but one of the cases pulmonary lesions were found at autopsy. As it was impossible to section the entire kidney the specimens were cut in strips about 2 mm thick and any gross lesions found in these strips were sectioned serially. When possible both kidneys were studied but in the majority of the cases only one kidney was obtainable for study.

Medlar states that tuberculous lesions of the kidney are extremely common in long standing pulmonary tuberculosis. Tubercle bacilli are brought to the kidney through the blood stream. In eight of ten cases in which both kidneys could be studied the lesions were bilateral. In the author's opinion, tuberculous infection of the kidney is simply a part of the picture of a hematogenous distribution of tubercle bacilli.

Renal tuberculosis may be present without any clinical manifestation and without the presence of tubercle bacilli in the urine. In two of the cases studied there was apparently no macroscopic renal lesion but Medlar believes that if it had been possible to make serial sections of the entire kidney tiny lesions would have been found.

Six of the cases studied showed scars in the kidney without any active tuberculous lesion and twelve showed scars with definite tuberculous lesions. Such scars do not indicate the nature of the pathological process that preceded them; they are the result of a reparative process. It is impossible to find tubercle bacilli or any infectious agents within their boundaries. Their interpretation depends largely upon an understanding of the pathogenesis of the various infectious and noninfectious renal lesions in which the phenomena of inflammation and repair play a part. Medlar was careful to rule out lesions which might have been caused by arteriosclerotic or other vascular conditions.

Some of the scars studied showed moderate lymphocytic infiltration. In others there were areas of more or less compact old fibrous tissue. In two cases there were bits of old caseous material and in another case a walled off caseous area was found. In no instance was it possible to demonstrate tubercle bacilli in the lesions or an active inflammatory reaction.

In Medlar's opinion the difference in appearance depends upon the age of the reparative process and whether or not caseation had occurred in the original lesion. A point proving that the scars are healed tuberculous lesions is the simultaneous presence in

the same kidney of scars and definite tuberculous lesions. In cases of long standing pulmonary tuberculosis tubercle bacilli bacteremia occurs at intervals. This would cause lesions of different ages in the kidneys.

Medlar noticed considerable variation in the cytological reaction of the tuberculous lesions. This depends wholly upon the number of tubercle bacilli in the lesion. When a large number of tubercle bacilli were found the lesion resembled an abscess more than a tubercle since polymorphonuclear leucocytes predominated. From the cellular reaction Medlar can predict with a fair degree of accuracy the ease with which tubercle bacilli can be found.

The acute type of lesion is the one in which caseation and ulceration are likely to occur at a later date. Such lesions which are very small have been observed in the glomeruli and in the tissue between the tubercles both in the cortex and in the medullary zone. Frequently they show erosion into the adjoining tubercles with inflammatory exudate and tubercle bacilli within the lumen of the tubercle. From this fact Medlar concludes that tubercle bacilli may be found in the urine in cases in which only milinary tubercles are present in the kidney. When the tubercle bacilli are few and the conditions are unfavorable for tubercle multiplication the typical tubercle is found. This does not go on to caseation but shows definite evidence of a reparative process. Eventually this type of lesion develops fibrous tissue and occasionally it is identified as the lesion of tuberculosis by the presence of a giant cell.

From his studies Medlar draws the following conclusions:

- 1 Tuberculosis of the kidney is very common in cases of advanced pulmonary tuberculosis.
- 2 The infection is blood borne and bilateral involvement is undoubtedly the rule.
- 3 Many cases of renal tuberculosis do not give clinical symptoms pointing to such bilateral involvement.
- 4 Sufficient evidence is at hand to warrant the assertion that tuberculous lesions of the kidney may heal.

5 The mode of infection and the distribution of the lesions in the kidney of the guinea pig and the human kidney are similar. As the essential organic structure of the kidney in man and the guinea pig is the same it seems logical to assume that, in clinical cases also, the presence of tubercle bacilli in the urine is positive proof of the presence of ulcerative tuberculous lesions in the kidney.

In conclusion Medlar states that nephrectomy should be advised only when there is considerable destruction of the kidney when tubercle bacilli are found in the urine from that kidney at repeated examinations made at considerable intervals of time when tubercle bacilli are not found in the urine of the opposite kidney at repeated examinations and when proper medical treatment has failed to cause the desired improvement.

GILBERT J THOMAS M D

**Keydel K.** The Diagnosis and Differential Diagnosis of Kidney and Ureteral Stone (Nierenuretersteine hinsichtlich ihrer Diagnose und Differentialdiagnose) *Verhandl d. deutsch. Gesellschaft f. Urol.* 1925 p. 94

The author has observed cases of repeated renal colic in which it was impossible to demonstrate one of the usual causes. The microscopic examination of the urine was variable, sometimes showing a sediment of uric acid crystals, sometimes a stronger sediment of amorphous earthy phosphates, and occasionally red corpuscles. In two of such cases which came to operation definite contraction waves were noted in the exposed kidney pelvis, but no stone or other abnormality was found.

Keydel concludes that in cases of this type the colic is due to chemical irritation of the kidney pelvis, especially of the ureter, by an excess of gravel. He briefly states the signs that are of aid in the diagnosis. True contracted kidney is not infrequently associated with phenomena suggesting stone. Pain may be caused by a stone left in the ureter after nephrectomy.

The article contains brief case histories.

VOY HOFFMAN (Z)

**Hinman F.** The Indication of Nephrostomy Preliminary to Ureterorectoneostomy. *J. Am. M. Ass.* 1926 lxxvi 921

The author discusses the various conditions in which ureteral transplantation is indicated, such as exstrophy of the bladder, cancer of the bladder or neighboring organs with extension to the bladder in which cystectomy is necessary, accidental ligation of, or injuries to, the lower end of the ureter, and tuberculous of the bladder. It has been found that in cases in which there is extensive tuberculous involvement of the bladder before the tuberculous kidney is removed, the remaining kidney, although not tuberculous, may develop a progressive hydronephrosis from obstruction due to the contracture and fibrosis of the badly infected bladder.

The author believes that the best part of the gut for transplantation of the ureters is the rectum, but points out that the unfortunate feature in any ureteral transplantation is that it prevents the surgeon from subsequently treating the kidney or ureter on that side by urological methods. Regarding nephrostomy as a preparatory measure to ureteral transplantation, he states that such a procedure would be logical in those desperate cases in which, although the patient may die after the ureteral transplantation, he will most certainly die if the ureter is not transplanted. He says, "The lumbar drainage leaves an avenue of direct treatment and free outlet for the urine from the kidney. As a matter of fact, one could now do as he wished with the lower end of the ureter. Such nephrostomy drainage would do away with the danger of early ascending infection and of obstruction from the early oedema during the time of healing, thus obviating the need of tubes and their dangers."

'Through such a nephrostomy opening after ureteral transplantation the lower ureter can be flushed from above in the natural direction, and, if necessary, its lower end gradually dilated by the passage of catheters through the nephrostomy opening. In this treatment, of course, catheters should be drawn on through the rectum, and not back by way of the nephrostomy opening.'

The author has used preliminary nephrostomy successfully in two cases of advanced tuberculous of the bladder. He does not believe it is indicated in all cases in which ureteral transplantation is necessary, but states that especially when only one kidney remains and the ureter is hypertrophied and dilated it will prove a safeguard that will materially lower the immediate mortality of the procedure and greatly promote its ultimate success.

HENRY L. SANFORD M.D.

### BLADDER, URETHRA, AND PENIS

**Rose D. K.** Stages in the Formation of Bladder Diverticulum. *South M. J.* 1906 vii 206

As the result of a clinical and histological study of bladder diverticula the author concludes that all diverticula are congenital to the extent that an unprotected or direct loose fibrous tissue pathway must be present in the bladder wall before a herniation can result. The time of life at which diverticula occur is determined by two factors: the area in the bladder wall that is unprotected by cross crossing muscle bundles and intracystic pressure. Thus, the formation of diverticula in childhood is dependent chiefly upon the presence of large, unprotected areas in the bladder wall, while the formation of diverticula in old age is due chiefly to increased intracystic pressure, the unprotected areas being smaller. The relative absence of muscle in diverticula suggests herniation. When muscle is found it is usually a stray muscle bundle which, due to fixation by infection or the accidental location of bundles, has not slipped down to the base of the dissecting cellulæ. The usual location of diverticula coincides with the most probable theoretical location. The difference in fixation at the trigone of the male bladder as compared with the female bladder is an important factor explaining the relatively greater occurrence of diverticula in the male.

In one of the author's cases the development of the diverticulum could be plainly seen through the cystoscope merely by increasing the intracystic pressure. Early removal of any type of bladder obstruction is especially indicated if a predisposition to diverticulum formation is suggested by the presence of one of its early stages, such as a ballooning cellulæ.

JOHN G. CHEETHAM M.D.

**Hirsch E. W.** Urethral Mucosa and Glands. An Anatomical and Histological Study. *J. Urol.* 1906 xi 293

While perhaps a hundred articles are written each year on the treatment of gonorrhœa in the male

and while potent drugs are available for such treatment it still requires a considerable amount of time to kill the gonococcus when it inhabits the urethra. One of the most important reasons for this is that the organism grows best under slightly anaerobic conditions and therefore finds within the urethral glands and lacunæ an ideal site for multiplication.

In a review of available textbooks on anatomy, histology, venerology and urology in English, French, German and Latin the author found widely diverse descriptions of the glands and lacunæ. Few investigators have studied the urethra and many urologists have accepted earlier writings on the assumption that they represented original work. Shaffer's *Lehrbuch der Histologie* contains an illustration of the urethral mucosa taken from a text printed in 1856.

The author's anatomical and histological study reported in this article was made on urethrae obtained from four to twenty-four hours after death and opened down the ventral surface with the scissors. The number, position and size of the lacunæ were noted. Sections 1 cm thick were then made of the entire urethra. Two urethrae were not opened but were sectioned throughout their length perpendicularly to the long axis so that the arrangement of the glands on the walls of the urethra could be studied.

Galen described the urethra rather vaguely or perhaps crudely. De Graaf in 1668 mentioned a secretion in the normal urethra. This fluid was next mentioned by Littre who described the mucous glands called Littre's glands or glandulæ urethrales. In 1706 Morgagni described the depressions on the upper wall of the urethra known as the crypts of Morgagni or lacunæ urethrales.

The urethral glands extend posteriorly from the posterior border of the fossa navicularis. The diameter of the average follicular duct varies from 0.03 to 0.06 mm. The average diameter of the gland body varies from 0.03 to 0.07 mm. The average depth is from 0.05 to 0.1 mm. The average submucous gland is from 0.3 to 0.5 mm deep and the duct of a submucous gland enters the urethra at a right or an oblique angle while the body of the gland bends at an oblique angle to the duct and is directed bladderward.

Urethral glands are found in the membranous and anterior urethra but have not been proved to exist in the prostatic urethra.

The lacunæ urethrales of Morgagni are visible depressions in the upper wall of the urethra beginning from 4 to 6 cm from the meatus and extending posteriorly for about three fifths of the length of the urethra at times almost to the membranous urethra. While they are frequently described as a single row the author's study shows them to be variously arranged and their number to vary from four to sixteen. At the mouth they measure from 2 to 3 by 0.5 to 1 mm. Their average length is from 3 to 10 mm and their average diameter from 0.5 to 1 mm. They

have no glandular function and they are not connected with the urethral glands. They are directed backward and end as blind sacs.

Urethral glands and lacunæ are most important structures for being directly connected with the urethra; they are involved in almost every case of gonorrhœal urethritis. The urethral glands are not connected with lacunæ. The glands secrete a small amount of mucus which protects the urethral wall from the acidity of the urine and during erection facilitates the passage of semen.

More progress will be made in the treatment of gonorrhœa when further studies are made of the structure of the urethra and the pathology of the glands lacunæ and mucosa.

CLAUDE D. HOLMES, M.D.

## GENITAL ORGANS

Reinle G. G. Prostatic Obstruction. *California & West Med.* 1926 xxiv 324.

Reinle says that the mortality resulting from prostatectomy is 25 per cent for some surgeons, 15 per cent for all surgeons and 3 per cent for surgeons employing all known precautions and safeguard.

In every case of difficult urination the abdomen should be palpated for distention of the bladder; the presence of residual urine determined and the prostate palpated through the rectum.

Palpation of the abdomen after the patient has voided will disclose whether or not the bladder is unduly distended. If in a case of distention the bladder is emptied by the catheter inserted to give relief or to determine the quantity of residual urine the result may be disastrous.

In palpation of the prostate the finger should be inserted into the rectum and the upper border, lateral margins and median groove of the gland explored. One of the most common errors is not reaching high enough into the rectum to insert the finger up over the upper border.

The type of obstruction will indicate the nature of the operation required. Frequently this information can be obtained only by cystoscopy.

In cases of great distention of the bladder it was formerly the practice to insert a catheter and first draw off about half of the urine and then at intervals draw off more. This method was an improvement over rapid emptying but was not ideal because relief of the back pressure was intermittent.

Van Zwaluwenburg conceived the idea of attaching the catheter to a long tube leading the tube to a receptacle placed at such a height that the pressure of the urine in the tube just a little less than balanced the pressure in the bladder and then gradually lowering the receptacle over a period of days until it was at the level of the bladder and the bladder was completely emptied.

The patient is ready for operation when decompression has been accomplished gradually; the blood pressure has returned to the normal and there is no undue spread between the systolic and diastolic

readings. At this time, the phthalein output which invariably drops below normal during decompression has come back to somewhere around 65 per cent. The blood urea will be between 10 and 30 gm per 100 c cm, the blood creatinin about 1 gm per 100 c cm, the urine output about 3,000 c cm per twenty four hours and the patient's mental condition greatly improved.

It is generally conceded to be a matter of no great moment which operation is performed if it is performed well.

The author describes his plan of operation briefly  
Louis Gross, M.D.

Hunt V C. *Hæmostasis in Suprapubic Prostatectomy*. *Ann Surg* 19 6 lxxxiii 381

In the last twenty five years there have been radical changes in both the suprapubic and perineal methods of performing prostatectomy. This has led to new standards for the end results of these operations. With the improvements in the technique of the operations the ultimate functional results of the two methods have been equally good in the hands of those skilled in the respective methods.

The mortality in prostatic surgery depends upon pre-operative preparation, the type of anaesthesia and hæmostasis. Hunt believes that the pre-operative preparation of patients and the anaesthetic used at operation have both helped in lowering the mortality rate in this type of surgery but that the importance of complete hæmostasis has not been sufficiently emphasized heretofore. The effect of blood loss following prostatectomy has been minimized. However the loss of blood for several days following the operation has lowered the patient's resistance to infection and depleted his organic reserve.

Various methods have been utilized which tend to control bleeding partially and ultimately to decrease the total loss of blood. Massage of the prostatic capsule immediately after removal of the gland has to some extent controlled the loss of blood from the interior of the capsule. Irrigation of the capsule with hot solutions has also been advocated. Packing of the capsule with fat or ingenious tampons has been of some value in preventing excessive loss of blood. Some success has been obtained also by various suturing methods. Thromboplastic substances such as kaphalin have been employed. Before the use of the Hagner bag and Pilcher's modification of it the best method of controlling bleeding from the capsule consisted in packing with iodoform gauze but in the removal of this gauze secondary hæmorrhage was occasionally precipitated.

The bag devised by Hagner answered a distinct need in prostatic surgery and served as an excellent means of producing hæmostasis within the prostatic capsule. It did not precipitate bleeding on its removal. Pilcher's modification of Hagner's bag provides for urethral drainage of the bladder conforms to the contour of the prostatic capsule and can be maintained in position by means of traction.

The bag may be used in either the one stage or the two-stage operation. It is used in the one stage visualized operation to supplement the sutures around the vesical neck and controls capsular bleeding. It has seemed advisable to prevent the Pilcher bag from entering entirely within the prostatic capsule, the best result being obtained when it impinges on the vesical neck or internal sphincter. The bag is inflated with water and held in place by gentle traction on the urethral tube. The amount of distention and traction necessary to control bleeding is somewhat variable. The distention varies with the size of the capsule. Excessive distention may be harmful to the sphincters of the bladder. The average distention pressure in a large series of cases was 140 mm. Hg. The bag is maintained in position by traction on the urethral tube obtained by means of a modified Hagner perineal tripod.

In the early cases in which the bag was used 25 per cent of the patients had varying degrees of incontinence but of the entire series only two have remained totally incontinent.

A strong silk cord is attached to a ring in the upper end of the urethral tube in the bag and threaded down through the urethral tube to the exterior. The principal traction to maintain the bag in place is made on the cord. This prevents the traction from pulling the bag into the prostatic capsule. For twenty four hours after the operation drainage from the bladder is maintained suprapubically by means of a No. 30 male urethral catheter. The water is released from the bag sixteen hours after the operation and the bag allowed to remain in place from four to six hours longer. If no further bleeding has occurred at the end of that time the bag is removed. A No. 16 catheter is drawn into the urethral portion of the bag and follows it through into the bladder as the bag is brought out through the suprapubic incision. Urethral drainage allows the suprapubic wound to heal quickly and shortens the patient's stay in the hospital.

In 702 cases in which the Pilcher bag was used it was necessary to re-inflate the bag in 4 per cent. Secondary hæmorrhage occurred from the fifth to the ninth day in seven cases. Seventy five per cent of the wounds healed without suprapubic drainage. Hunt concludes that the use of the Pilcher bag is a most effective method of obtaining hæmostasis after suprapubic prostatectomy.

## MISCELLANEOUS

Quinby W C. *Conservatism in Surgery of the Urinary Tract*. *Internat J Med & Surg* 1926 xxxv 91

A successful outcome of an ailment may be practically certain if an organ or an extremity is sacrificed but there is always the question as to whether a reasonably good prospect of cure might not be offered by some less radical operation. To determine the proper form of procedure requires surgical judgment and consideration of the experience of other surgeons.

The author states that more free joint bodies in the human subject should be studied with special attention to the characteristic finding of articular cartilage attached to osseous spongiosa. The possibility of such a finding is not excluded even when the history does not indicate a traumatic origin with certainty. Such a determination may prove of value in forensic medicine. HAIM (Z)

**Lehmann J C** Is It Possible for an Osteochondritic Joint Mouse to Become Rehealed into Place? (Ist eine Wiedereinheilung osteochondritischer Gelenkmause möglich?) *Deutsche Zeitschrift für Chirurgie* 1925 cxviii 88

In a series of relatively fresh not loosened or at least not entirely free osteochondritic joint mice evidence of a process of substitution of the dead marrow and osseous tissue was found. In the non vital marrow cavities this substitution appeared in the form of young fibrous tissue rich in cells and vessels and in the bones in the form of cartilaginous and osteoid tissue reticular bone and lamellary strata on the trabeculae of the spongiosa which apparently were without nuclei (non vital).

On the dorsal surface of the joint mouse and also on the fracture surface of the proximal fragment were irregular areas of hyaline cartilage which in many cases bordered a line of division (pseudarthrosis formation) and in others formed a bridge between the newly formed bone in the subchondral region and that on the border of the deeply penetrating osteochondritic focus. The latter findings suggest a complete reconstruction of the area.

The histological picture in osteochondritis dissecans (osteochondrolysis) is similar to that of Perthes and Koehler's disease and in the latter conditions also joint mice are found.

Axhausen's theory that in osteochondritis the findings are due to a pathological fracture is the most plausible. The author does not accept the theory of a mild necrotic form of embolism. The question of the character and cause of the vascular closure is still unanswered. KOCH (Z)

**Smith A DeF** The Pathology of Joint Tuberculosis in Its Earlier Stages *Arch Surg* 1926 xlii 740

The routine practice in the New York Orthopedic Dispensary is to make an absolutely certain diagnosis in every early case of suspected joint tuberculosis. If guinea pig inoculation fails an exploratory operation is performed. When the diagnosis is positive an arthrodesis is done.

From March 1922 to March 1925 190 operations were performed on tuberculous joints exclusive of the spine. Of these cases a series of twenty three in which the process was in the early stages were chosen for special study. In seventeen of the twenty three cases the synovial membrane alone was involved. In three the bone alone was affected and in three both the bone and synovial membrane showed tuberculous changes. Since the cases with involve-

ment of the synovial membrane alone were most numerous the author concludes that tuberculosis of joints originates most frequently in the synovial membrane.

In cases in which the synovial membrane is first involved the course of the disease is very slow as compared with cases in which the bone is first involved. No cases were seen in which the disease was confined to the epiphysis.

ELVEN J BERKMEISER M D

**Kuettner H and Hertel E** What is Known Regarding Ganglia (Die Lehre von den Ganglien) *Ergebn d Chirurg u Orthop* 1925 xviii 377

Ganglia are cystic tumors with gelatinous contents which occur in the region of joints and in the opinion of the authors arise from misplaced germinal cells of the connective tissue joint anlage. Pathologically histologically they are cysts with fibrous walls which exhibit hydropic or hyaline degeneration of the connective tissue. Ganglia often communicate with a joint capsule or tendon sheath. They differ from bursae in that they always occur in the immediate vicinity of a joint while the latter may occur in any part of the body and arise as a result of frequently recurring pull or pressure stresses.

Kuettner found a symmetrical occurrence of ganglia in 3 per cent of his cases and is inclined to the opinion that in these as in cases of symmetrical exostoses and enchondromata there may be a hereditary factor.

Ganglia near the wrist joint constitute 81.3 per cent of all ganglia and occur most frequently in females between the ages of 10 and 25 years. They may develop following strenuous piano or violin playing and similar occupations.

Ganglia near the knee and ankle joints are more common in the male than in the female and develop most frequently after the thirtieth year of age.

Trauma may play a part in the development of tumors of this type but is rarely their cause. Ganglia due to occupational injuries are therefore rare. On the other hand it appears that such tumors occur most frequently in persons with constitutional weakness of the ligament.

The theory of some French surgeons that there is a relationship between ganglia and latent tuberculosis has not been substantiated.

Pain occurs in a ganglion only following a strain and is not due to the size of the tumor. While small ganglia on the flexor tendons of the fingers may cause pain early ganglia the size of a goose egg appearing in the popliteal space may be entirely painless and may not be noticed until late in their development. The pressure exerted by a ganglion on a nerve often causes a peripheral disturbance of sensation and more rarely slight motor disturbances. Ganglia of the long tendons of the fingers may give rise to the phenomenon called trigger finger in which the finger is hindered in flexion at the beginning of the movement and then lets go with a jerk or snap.

In size ganglia range from those the size of a pea on the finger to those the size of a child's head in the popliteal space

Carpal ganglia are easy to recognize, but the differential diagnosis between ganglia, bursa, and neuroma is difficult when the latter are situated near a joint

In general a ganglion should be extirpated under strict asepsis Kuettnier estimates the incidence of spontaneous cure at 16 per cent The therapeutic measures to be considered are puncture bursting of the ganglion by a blow, subcutaneous dissection and total extirpation Even when extirpation is done the incidence of recurrence is 30 per cent

In 170 cases of ganglia at the wrist which were seen at the Tuebingen clinic the tumor was on the dorsum in 79 per cent and on the volar aspect in 23 per cent

The ganglion appearing on the radial side of the dorsum of the wrist lies in the fossa of Ledderhose on the intercarpal joint between the navicular and semilunar bones on one side and the multangulum minus and os magnum on the other

The ganglion appearing on the ulnar side of the dorsum of the wrist lies proximal to the ulnar styloid process

The ganglion appearing on the volar side of the wrist always lies between the tendons of the flexor carpi radialis and the abductor pollicis longus muscles

Between the dorsal and volar groups of ganglia appears the dorso-volar ganglion on the radial side of the wrist In the palm of the hand ganglia occur most frequently near the metacarpophalangeal joints Ganglia of the elbow and shoulder joints are exceedingly rare

The incidence of ganglia in the lower extremities is 9 per cent In the foot, ganglia are found most commonly on the external malleolus Occasionally they develop near Chopart's joint, between the cuboid and the anterior process of the calcaneum at Lisfranc's joint, and at the talonavicular joint Ganglia of the popliteal space may occur on the medial and flexor tendons and may reach the size of a tangerine Somewhat more deeply situated are the medial and lateral supracondylar atheromata of the knee which take their origin from the bursa of the internal gastrocnemius On the head of the fibula a ganglia may appear which causes irritation of the peroneal nerve

Multilocular ganglia on the menisci the size of a pea are rare Still more rare are ganglia arising from the iliac bursa at the hip joint The removal of these ganglia should always be done with the use of a tourniquet and under the strictest asepsis

In conclusion the authors discuss tendon ganglia which occur as foci of cystic degeneration in tendon sheaths or as solid thickenings of the tendons and give rise to the so called trigger finger They take up also the ganglia of the nerve sheaths which as a rule are situated centrally in the nerve arise from the connective tissue of the nerve sheath and pro-

duce a spindle shaped or club shaped thickening of the nerve by pushing the nerve fibers aside

A typical location of nerve sheath ganglia is on the peroneal nerve in the region of the popliteal space Ganglia of nerve sheaths are painful and should always be surgically removed with care not to injure the nerve tissue

DUNCKER (Z)

Batson, O V, and Zinninger M M The Experimental Production of Annular Ligaments as an Example of the Influence of Function upon the Differentiation of Connective Tissue *Bull Johns Hopkins Hosp*, Balt, 1926 xxxviii 124

The authors conclude from their experiments that a fundamental property of connective tissue is the ability to form fibers under physiological strain and that the various connective tissue bands of the body are developed in response to mechanical forces The persistence into adult life of structures which are vestigial remnants they believe is due to pull exerted upon these structures

Their studies of the periosteum in relation to annular bands seemed to indicate that the periosteum for each bone presents a definite arrangement of fibers and the arrangement always corresponds to the tension applied in the bending of the bone

The article is well illustrated

S C WOLDENBERG M D

Kroh, F Trigger Finger and Stenosing Tendonitis of the Flexor Tendons of the Finger (Schnellender Finger und stenosierende Tendonitis der Fingerbeugesehne) *Arch f klin Chir*, 1925 cxviii 240

The clinical picture of snapping finger and the mechanism of origin of this peculiar disturbance of motility was described very clearly decades ago The author sought to increase our knowledge of it by a careful anatomical study of fourteen cases

The disturbance of motility is often erroneously believed to be in the interphalangeal joint whereas it always occurs at the level of the metacarpophalangeal joint at the point where the tendon sheath is narrowed by the accessory volar ligament

The trigger phenomenon may occur with flexion or extension or both of these movements The inhibition of the tendon movement may arise as the result of localized thickening of the tendon with an intact or pathologically narrowed tendon sheath or as the result of greater or less narrowing of the tendon sheath due to thickening or chronic inflammation In the latter condition the disturbance of motility may be due to pain and the phenomenon of slipping or jerking may be absent

The treatment is relatively simple—excision of the volar portion of the diseased section of tendon sheath

Microscopic examination of the extirpated specimen shows a hyperplasia of all of the elements of the tendon sheath In a more advanced stage there may be a fissuring and vascularization of the fascial tissue of the ligaments, and at an even later stage, hyaline degeneration

In none of the author's cases was it possible to obtain a definite history of trauma or chronic inflammation of the joints in spite of the fact that the processes found in the tendon sheath suggested these factors. In every case the Wassermann test was negative. Instead of containing fluid the tendon sheath was rather dry. In the cases with the trigger phenomenon the author found at the level of the proximal accessory band (the accessory volar ligament) a decrease in the caliber of the tendon sheath and peripheral to this a thickening of one or both flexor tendons. BRELET (Z)

**Hanson R. On the Development of Spinal Vertebrae as Seen on Skiagrams from Late Fetal Life to the Age of Fourteen.** *Acta radiol.* 1926

v 112

From late fetal life up to the age of 2 years the vertebral body appears in a lateral roentgenogram as divided into three plates: one upper and one lower denser plate and a less dense plate between these. In the anterior margin of the latter there is seen an excavation in the form of an amputated cone with its base directed forward.

This excavation is occupied by a vein running close under the perichondrium or periosteum and continued toward the foramen vertebrae by a branch on each side of the middle line. During the second year of life the excavation disappears except in the lower five to seven dorsal and the first and second lumbar vertebrae where it persists up to the age of 14 years.

Between the second and fourteenth years of life the canal formations may have different shapes as shown in Figs. 2, 3, 4, and 5.

In some persons the vertebral body has a staircase-like outline at its two anterior corners as shown in Fig. 6. The epiphyses are formed in these staircase-like structures (Fig. 7). As the author has found this kind of vertebra in persons with a rounded back, he assumes that in some cases the peculiar shape of the vertebrae may be the anatomical foundation of kyphosis.

Hanson has found epiphyses in a child aged 6 years although it has been stated that they do not occur before the age of 11 years. He has discovered the described canal formations in all cases examined—in fetuses 35 cm. in length and in children of all ages up to 14 years. As they are largest in the vertebrae which are most frequently involved by tuberculosis, he assumes that the extensive venous system of these vertebrae may favor the retention of tubercle bacilli.

**Freedman A. C. An Anatomical Note on a Possible Source of Error in the X-Ray Findings of the Normal Vertebral Column.** *Canadian M. Ass. J.* 1926 xvi 44

The author reports the case of a man 25 years old who sought treatment for two painful nodules on his back situated  $1/2$  in lateral to the eleventh and twelfth spinous processes. Lateral roentgenograms

showed fissures running transversely through the centers of the bodies of the tenth, eleventh and twelfth dorsal vertebrae.

The clinical diagnosis was pulmonary and intestinal tuberculosis.

At autopsy the clinical diagnosis was confirmed. The two painful nodules were found to be under the deep fascia of the muscles of the back and not connected with the spine. Roentgenograms of the excised vertebral column showed the same fissures as the roentgenograms taken during life. A sagittal section through the vertebral column revealed running transversely through the center of the bodies of the vertebrae from the ninth thoracic to the fifth lumbar more or less complete horizontal channels dividing each vertebra into an upper and lower segment and containing veins extending backward to join a longitudinal plexus of veins. These channels corresponded to the fissures seen in the roentgenograms.

The author describes the embryology and the development of these structures.

The case history is illustrated with several photographs and roentgenograms of the spine.

FRANK G. MURPHY, M.D.

**Wentworth E. T. Systematic Diagnosis in Backache.** *J. Bone & Joint Surg.* 1926 viii 137

Wentworth discusses static backs, osteoarthritic backs and the differential diagnosis of four types of traumatic back—sacroiliac strain, sacroiliac luxation, lumbosacral strain and fractures and dislocations in the lumbosacral region.

Local pain or tenderness may be due to local traumatism or the irritation or injury of the nerves. In the diagnosis it is necessary to determine the nature and degree of the stress which causes pain. When the patient complains of weakness the range of motion should be determined by direct and indirect examination. The patient's economic and social background must also be considered and the possibility of exaggeration of the complaints or malingering must be borne in mind.

Low back pain is caused by fractures and dislocations and by osteoarthritides due to infection or a metabolic disturbance. Hypertrophic conditions cause local pain on motion and stress and radiating pain resulting from the irritation of certain nerve trunks.

Sacroiliac strain is the result of muscle fatigue causing loss of support of the bony parts by the muscles or is produced by sudden over-exertion of muscles. The loss of muscle support may be due to long standing, stooping or lying in a fixed position. Sudden or prolonged strain may cause various degrees of rupture of the ligaments.

A diagnosis of sacroiliac subluxation may be made when there is demonstrable mobility of the joints with relief of the symptoms by a change of position. A physiological relaxation of the joints occurs during menstruation and pregnancy and a pathological relaxation during general debility and postural strain.

Gross displacements of the joints have been demonstrated by the X ray after severe trauma. The diagnosis of sacro iliac subluxation is substantiated when the symptoms are relieved by manipulative reduction.

Lumbosacral strain usually accompanies traumatic sacro iliac strain and may be due to lordosis or a congenital bone anomaly.

Spondylolisthesis is the exaggeration of lumbosacral strain and occurs following fracture or dislocation of the fifth lumbar facets or in the presence of an anomaly of the fifth lumbar vertebra or sacrum.

Static backache is the result of chronic strain due to improper position of the feet, legs, pelvis, or spine.

Strains are favored by congenital anomalies. The degree of a strain is dependent upon the degree of imbalance between the bones and musculo ligamentous supports.

Sacralization is a partial or complete fusion of the fifth lumbar vertebra and the sacrum or an articulation of the transverse process of the fifth lumbar vertebra with the ilium. Pain may be produced by pressure of a muscle or ligament between the transverse process and the ilium, irritation or inflammation of abnormal joints or bursae, strain of the sacro iliac or lumbosacral joints due to leverage of the transverse processes on the ilium or sacrum or stretching of or pressure upon the nerves of the lumbosacral plexus.

Sciatica is usually the result of irritation of the lumbar and sacral plexus by injury or disease in the lumbosacral or sacro iliac regions. It may be caused also by gluteal myositis, chronic fibrositis, or gluteal bursitis.

Wentworth reports his findings in 750 cases of low back pain with special reference to the differential diagnosis.

The diagnosis of static strain is difficult because with the exception of poor posture, the findings lack uniformity.

With regard to the differential diagnosis between lumbosacral and sacro iliac lesions, Wentworth states that there is a history of severe trauma only in the sacro iliac cases. In cases of lumbosacral lesions there is an occupational factor. The pain in sacro iliac cases is sacro iliac pain while that in lumbosacral cases is lumbosacral and lumbosacro iliac pain.

Lumbosacral cases present more marked X ray findings than sacro iliac cases. In the lumbosacral cases there is tenderness over the lumbosacral lumbosacro iliac, and sacral regions and the spinous processes, whereas in sacro iliac cases there is tenderness over the sacro iliac joint.

In sacro iliac conditions pain may be elicited by pressure on the iliac crests when the straight leg is raised between 180 and 140 degrees while in lumbosacral conditions it occurs when the straight leg is raised between 140 and 110 degrees.

RUDOLPH S. REICH, M.D.

Chassard. Acetabular Lesions in Osteochondritis of the Hip (Lesions acetabulaires dans l'ostéochondrite de la hanche). *Rev d'orthop*, 1925, xxvii, 517.

The author reviews the literature on osteochondritis of the hip and discusses the roentgenograms of twenty six cases. Besides the usual findings such as shortening of the femoral neck and a change in the angle between the neck and the shaft with more or less extensive rarefaction, he calls attention to the irregularity of the border of the acetabulum, in some cases there may be marked dents and spurs. In the vicinity of the acetabulum and especially in the area just above the roof of the fossa, the surface of the ilium shows decalcification. In six of the cases studied the roof of the acetabulum was displaced upward while in eight there was a certain degree of subluxation of the joint. Ten cases showed a tendency of the upper border to assume an elliptical form. In six cases the angulation of the ischium ranged from 93 to 100 degrees, a change which accounted for separation of the fossa and the femoral head.

ANTHONY F. SAVA, M.D.

Yount, C. C. The Role of the Tensor Fasciae Femoris in Certain Deformities of the Lower Extremities. *J Bone & Joint Surg*, 1920, viii, 171.

Hip flexion contracture is a very common sequela in untreated and improperly treated cases of anterior poliomyelitis in which the extent of the paralysis is such that walking is impossible but the patient is able to sit. If this deformity were one of true hip flexion (i.e. due to contracture of the iliopsoas) adduction or abduction of the thigh would not materially influence it but in the majority of the cases it completely disappears when the thigh is abducted and reappears when the thigh is adducted. On its re appearance the structures on the outer side of the leg become tense. The iliopsoas, the sartorius, and the rotators of the thigh do not seem to affect it. In addition to the function of abducting the hip the tensor fasciae femoris renders the fascia lata tense. In the latter function it is assisted by the gluteus maximus which is inserted into it. The gluteus maximus therefore acts as a tensor of the fascia lata as well as an extensor of the thigh.

When there is paralysis of the quadriceps extensor muscles, knee flexion contracture is very frequently associated with hip flexion contracture.

Knock knee, another commonly associated condition is usually due to displacement of the tibia on the condyle of the femur caused by lack of balance between the external and internal rotators of the knee. In most of these cases however, it is found that the iliotibial band offers resistance to internal rotation with overaction of the biceps. The treatment indicated depends upon the degree of the deformity. Postural stretching without operation should be limited to cases of hip flexion without knee flexion deformity or knock knee. In cases in which all three deformities are present to a mild degree, simple subcutaneous division of the iliotibial band at the knee followed by stretching and correction of



the flexion by wedging and by the use of a cast is advisable. The presence of all three deformities in adults and in children over 6 years of age requires complete division of the fascia lata as far as the biceps tendon and mesially to the middle of the anterior surface of the thigh.

In marked knee flexion and knock knee the biceps should be lengthened by the open method. In two of the more severe cases reported by the author all of the ligamentous structures interfering with correction of the deformity were divided beginning at the tubercle of the tibia.

For cases of quadriceps paralysis in which the tensors of the fascia lata are active the use of the latter as extensors of the knee by the method of Spitzzy is suggested. The author has modified this procedure in that instead of stripping free a narrow portion of the fascia lata up to the muscular insertion of the tensor fasciæ femoris he includes a broad fan shaped section of the fascia lata from the lateral and posterior surface. He has used the method in one case but the time that has elapsed since the operation is not sufficient to warrant conclusions as to the end results.

In cases of active external and internal hamstrings transplantation of the biceps with the tendons would probably give the best results.

RUDOLPH S REICH M D

## SURGERY OF THE BONES JOINTS MUSCLES, TENDONS ETC

Galbraith J H The Prevention of Deformity

*Atlantic M J* 1926 xxx 366

Davis A G The Treatment and Correction of

Spinal Deformity *Atlantic M J* 1926 xux 360

Willard DeF P The Correction of Deformities

of the Lower Extremities *Atlantic M J* 1926

xxx 373

Yount C C The Treatment of Deformities of the

Upper Extremity *Atlantic M J* 1926 xxx 375

GALBRAITH reminds us that joints which are liable to become ankylosed should be treated in the position that will be most useful to the patient in his occupation. As a rule the shoulder joint should be treated with the humerus abducted and rotated externally the elbow in about 90 degrees of flexion and the wrist in hyperextension with the fingers flexed. The hip should be treated in abduction with slight flexion the knee in slight flexion and the ankle with the foot at right angles to the leg. These positions can be maintained with braces or plaster casts.

To reduce the secondary deformity the factors causing it must be overcome by simple mechanical methods.

DAVIS states that he has much confidence in the treatment of attitudinal scoliosis by the Abbott method but believes that scoliosis due to infantile paralysis should be treated with jackets applied while the patient is suspended and by corrective breathing exercises.

The deformity of Pott's disease can be prevented in most cases by arresting the destructive changes by

systematic heliotherapy and physiological rest of the part. Rest is given by recumbency in a plaster shell or on a Bradford frame and by spinal fusion produced by the Hibbs or Albee method. The method to be used depends upon the requirements of the particular case and the surgeon's familiarity with the various procedures. For the average case Davis prefers preliminary splinting correction and general antituberculosis therapy followed by the Hibbs fusion operation.

With regard to compression fractures of the vertebrae he states that the vertical diameter can be restored almost to normal if sufficient hyperextension is used.

WILLARD calls attention to the fact that congenital club foot is primarily a deformity due to contractions of the soft parts. Later deformities of the bones occur. As correction is easy in the early stages the treatment should be begun before the bones have become deformed. If over correction by manipulation is found to be impossible a tenotomy must be done on all contracted parts. Braces may be necessary for months or years to prevent recurrence of the deformity. In the cases in which the bones have

already become deformed radical bone operations on the tarsus are necessary in order that the foot may be placed easily in a position of mild talipes equinovarus.

Deformities of the foot resulting from infantile paralysis are due to loss of muscle balance. Operative procedures for their correction should not be undertaken until after a period of four years devoted to attempts to restore muscle function and prevent deformity.

The two operative procedures of the greatest value are the transplantation of tendons of strong muscles to assume the function of the paralyzed muscles and arthrodesis to prevent motion and thereby correct the existing deformity. These operations give the best results when they are performed after the eighth year of age. Arthrodesis should never be done before the seventh year and is best delayed until the tenth. A stiff painless joint in good position has good weight bearing function. If there is deformity of the hip it can be corrected by arthroplasty or subtrochanteric osteotomy.

YOUNT states that as the injury which results in obstetrical paralysis is seldom treated promptly after its occurrence the consequent deformity is worse than is warranted by the nerve damage.

In the treatment the arm should be braced in the opposite direction i.e. in adduction and external rotation with supination of the forearm and extension of the fingers and wrist. After muscle tenderness has disappeared the entire arm should be massaged. The splinting and massage should be continued for from three to six months.

In deltoid paralysis due to infantile paralysis arthrodesis of the shoulder gives considerable functional improvement if the intrinsic muscles of the scapula are in good condition.

ELLEN J BECKMEISER M D

**Wittek, A** *Injuries of the Hands and Fingers*  
(Hand und Fingererletzungen) *Nederl tydschr v geneesk* 1925 lxxix, 94

The author, as head of an emergency hospital, has had ample opportunity to observe accident cases, especially those with poor results and to learn from such errors how to improve methods of treatment.

First and second degree burns of the hands, the latter after opening of the vesicles, are best treated with silver foil. This treatment results in a cure without scarring and causes little pain.

Injuries of laborers' hands from circular saws etc., have an unfavorable prognosis. If treatment is instituted early, the best method is excision of the soiled deep wounds with primary suture.

The success of nerve and tendon suture in the hand, especially on the flexor surface depends upon the early insertion of the sutures and the beginning of active movements after from ten to twelve days.

Penetrating wounds of the joints, especially in the fingers, should be sutured as soon as possible. In the metacarpophalangeal joints, at least on the extensor surface, it is nearly always possible to suture after the removal of skin flaps but in the interphalangeal joints this is quite difficult.

Injured fingers should be bandaged in slight flexion over a roller bandage and possibly with the application of a small flexible metal splint on the dorsal aspect.

Hammer injuries often result in fractures of the proximal phalanx with broken off fragments. These fractures must be set properly under anesthesia.

Complicated hand injuries should not be treated too conservatively as crippled finger stumps will later be more of a disadvantage than an advantage. In partial amputation of the fingers the scar should be placed as far toward the dorsal aspect as possible and the insertion of the long flexor tendons and the base of the proximal phalanx should be preserved. A case of this type should be treated in a hospital, even though the patient and physician may oppose it. The after treatment should be carried out with protracted hot water baths.

In cases of old hand and finger injuries it is often necessary to improve poor results and the consequences of infection, as for instance, by the use of free fat transplants. Because of the possibility of lighting up the infection, extra articular methods should be used.

In ankylosis of the wrist, dorsiflexion and better closure of the hand is obtained by chiseling out a wedge with its base directed dorsally. Even if the joint is movable, extensive scars remain in the extensors therefore flexor tendons are transplanted to the extensor aspect.

The very frequent faulty contraction makes it very difficult to overcome stiffness of the fingers. This can be corrected most quickly by Schede's lateral incision. The fingers should then be bandaged in slight flexion.

Ankylosis of the fingers after laceration or after suppurative of the flexor tendons such as occurs in

phlegmons is improved by transplantation of the tendon of the palmaris longus. When this condition is present in several fingers the author resects the first interphalangeal joint and by causing bony ankylosis at the correct point gives the hand a better grasp. When the thumb is lost, an attempt is made, in the cases of young persons to replace it with the toe or to build up a thumb from the skin of the breast and a piece of rib in the cases of older persons it is necessary to use a prosthesis. When several fingers are lost but the thumb is intact, the metacarpals are sacrificed in order that the remaining fingers may be approximated to the thumb more easily. When all of the fingers and the thumb are lost the metacarpal interspaces are split and covered with skin (Burlard's "Mittelfinger").

SCHEUER (Z)

**Howell, B W** *A New Operation for Opponens Paralysis of the Thumb* *Lancet* 1926 ccc 131

To improve function in the thumb in which the normal opponens muscles are paralyzed, the author transposes the tendon of the flexor longus pollicis. This tendon is exposed through a palmar incision on the thumb to above the wrist. The flap is well undermined to the radial border of the thenar eminence and a second incision about 2 in. long is made on the dorsal surface of the thumb.

The tendon is then divided at the wrist and the distal portion passed subcutaneously around the ulnar border of the first phalanx and out through the dorsal incision. It is then passed back through the same incision subcutaneously in an oblique direction across the tendon of the extensor longus pollicis so that it comes to lie subcutaneously on the thenar eminence.

A subcutaneous tunnel is then made to the upper part of the original incision the tendon is drawn through and with the thumb in opposition the tendon ends are united with twenty day chromicized gut.

After the operation the thumb is held in opposition by a cast. When healing has occurred, the patient is educated in the use of the thumb in opposition by faradic stimulation and massage.

The author states that he has had good results from this procedure in eight cases.

FRANK G MURPHY M D

**Smith Petersen, M N and Rogers, W A** *An End Result Study of Arthrodesis of the Sacro-Iliac Joint for Arthritis—Traumatic and Non-Traumatic* *J Bone & Joint Surg* 1926 viii 118

In traumatic osteo arthritis of the sacro iliac joint the roentgenogram shows increased density along the margin of the joint, irregularity of the joint line, proliferative changes at the inferior margins, and disalignment of the pubes.

Microscopic examination of the cartilage and bone removed reveals erosion of the cartilage and its replacement by fibrous tissue. In some cases the area of fibrosis shows localized areas of hemorrhage.

In all of the twenty six cases reviewed by the authors the patient complained of local pain and tenderness on pressure in the region of the inferior sacro iliac ligament and sacrosciatic notch and of radiating pain along the distribution of the first and second sacral nerves i.e. the posterior aspect of the thigh and the posterior and lateral aspects of the leg. In 12 per cent there was tilting of the pelvis. In all of the acute cases muscle spasm occurred when the patient stood up and decreased or ceased entirely when sitting or recumbent position was assumed. Straight leg raising was positive in twenty four cases. Lateral compression was present in 5 per cent. The authors consider this sign valuable when it is present but state that it is often misleading and is not pathognomonic.

Since the operation for this condition was first described it has undergone several important modifications. After the usual exposure of the sacro iliac region a window is removed from the ilium with a motor driven saw. The joint cartilage is then curetted out and after removal of the cartilage from the block of bone the latter is replaced and countersunk and the edges of the window are broken down.

Of the twenty six cases in which this operation was performed complete recovery resulted in twenty two (84.6 per cent) and partial recovery in two (7.7 per cent). In the remaining two the treatment failed.

RUDOLPH S. REICH, M.D.

**Lavalle C. Fifty Cases of Tuberculous Osteo Arthritis—White Swelling of the Knee and Coxalgia—Which Were Cured by Bone Grafting the Patient Remaining in Bed Only Twenty Five Days.** (Cincuenta casos de osteoartritis tuberculosas—tumores blanco de la rodilla y coxalgia—curados con injertos óseos en 25 días de cama.) *Semanal med.* 1925 xxxii 1209.

Lavalle reports the clinical histories of thirteen of fifty cases of tuberculous osteo arthritis which were treated by his method of bone grafting. Thin bits of bone the size of toothpicks enveloped in periosteum are taken from the patient's tibia, the cutting being done with sharp scissors instead of a saw in order to keep the haversian canals open. In tuberculous osteo arthritis of the knee a tunnel is then made in the lower third of the diaphysis of the femur and the upper third of the diaphysis of the tibia and into these tunnels the ends of the grafts are inserted, the graft being passed around the knee like a bridge and not penetrating the joint. After the graft has been introduced the periosteum which was pushed back from the tibia and femur when the tunnels were made is brought back over the graft so as to enclose it completely.

Lavalle believes that the regeneration of bone takes place not from the periosteum but from the cortex and marrow, the periosteum acting only as a retainer and guide to the newly formed bone.

In coxalgia the grafts are passed around the head of the femur, one perforating the rim of the acetabulum and the other the neck of the femur and are

united by the trunks of bone which run around the joint in the subcutaneous cellular tissue. The connective tissue bed furnishes abundant nutrition and a copious blood supply for the graft. The free circulation established through the haversian canals of the graft drains away the toxins from the tuberculous focus and establishes conditions of nutrition which help the tissues in their struggle against the infection. The part of the graft within the bone brings about by its trophic action a condensing osteitis leading to ossification.

Within a few days after the operation improvement is noted in the patient's general condition, appetite and color, the yellowish tint of tuberculous cachexia disappears and the pain stops. After twenty five days the patient can be out of bed without any apparatus and should be allowed to go to school, play and carry on the normal activities of a child's life. After six months the lateral grafts are removed as they have then served their purpose. Illustrations of such removed grafts show that the fractures in them have healed and that the grafts have increased from the size of toothpicks to the thickness of a rib.

The grafts must be autoplasmic and osteoperiosteal and in their transplantation the most careful asepsis must be observed. The bed in the subcutaneous cellular tissue must be carefully prepared and all bleeding must be controlled so that there will be no clots between the bed and graft to interfere with the penetration of the capillaries. The graft should be carried down to the spongy tissues of the bones in which it is implanted. While the patient is in bed the field of operation should be immobilized.

The grafts in all of the author's cases have lived. They formed firm adhesions with the surrounding tissue and were abundantly nourished. A complete recovery resulted even in cases of open tuberculous osteo arthritis infected secondarily with other bacteria, the fistula closed and the lesions healed within a few months. Many of the cases were old ones with advanced lesions and subluxation. The perforation of the diaphysis, so epiphyseal cartilage in the operation has never interfered with the growth of the bone, the only cases of shortening being those in which the shortening had already taken place before the operation. Cases of bacillary osteo-arthritis can be cured by this method in five or six months with the child leading an active life whereas with the use of the old methods of immobilization and electrotherapy four or five years were required to effect a cure. If the treatment is given early complete mobility of the joint can be obtained.

AUDREY G. MORGAN, M.D.

## FRACTURES AND DISLOCATIONS

**Curtillet J. and Tillier R. The Indications for the Pedicled Bone Graft and Its Advantages.** (Les indications et les avantages de la greffe osseuse à pédicule.) *Lyon chir.* 1925 xxi 789.

The authors claim priority over Cuneo for the pedicled bone graft since in 1904 they described

the method of making the large flap which constitutes the pedicle of such a graft. This thick flap of muscle and aponeurosis maintains the vitality of the graft by preserving its nutrient vessels. Its formation is analogous to the Indian method of making a pedicled skin graft which is in common use.

In general, a free bone transplant acts only as a guide to the new formation of bone. The graft itself dies and becomes absorbed. A bone graft has often been compared to a nerve graft, but the nerve fibers that penetrate the dead nerve graft are elements which function directly, while the blood vessels that penetrate the free bone graft do not play any direct part in the function of the bone. The bone graft acts only as a prosthesis and the vessels weaken rather than strengthen its prosthetic action. They bring about absorption and what is called haversian re-habilitation and these cause the fragility of the graft which is so often responsible for secondary fractures.

It was formerly thought that one of the conditions for successful bone grafting was healing of the wound by first intention, but Ollier found that tissues may ossify better if they are irritated in the presence of bone. Therefore if a graft is eliminated slowly by an attenuated infection the functional result may be more satisfactory than that obtained by an aseptic operation since under these circumstances the callus formed is capable of being molded and there is no danger of a secondary fracture.

The pedicled graft tends to bring about the desired result without the danger of infection. Even though it contains only a small amount of bone it causes ossification of the surrounding tissues. Instead of being transplanted it is displaced, together with its nutritive materials and therefore is living and not dead, bone.

The graft need never be more than 4 or 5 mm thick, whatever its length. In some of the author's cases it was as long as 10 cm. Thin grafts of this type may increase to the size of the normal bone.

In one of the two principal methods of performing the operation the graft is taken from a neighboring bone. This is possible of course, only in the leg or the forearm. In the other method it is obtained from the bone in which the defect to be repaired is situated. Three clinical cases illustrating the different methods are reported.

AUDREY G. MORGAN, M.D.

**Dollinger J.** The Operative Reduction of Old Traumatic Dislocations of the Shoulder Elbow, and Hip on the Basis of 207 Cases. (*Die operative Einrenkung der veralteten traumatischen Verrenkungen der Schulter des Ellenbogens und der Huelfte auf Grund von 207 selbstoperierten Faellen*). *Ergebn d. Chir. u. Orthop.* 1925, xviii, 1.

This article reports upon 103 cases of old dislocations treated surgically and supplements a report on 104 similar cases made by Dollinger in 1911. The recent series included forty-five dislocations of the shoulder, forty-six of the elbow, and twelve of the hip.

#### SHOULDER DISLOCATIONS

The patients with shoulder dislocations ranged in age from 11 to 72 years. Thirty-three were men. In twenty-nine cases the dislocation was reduced by open operation, in ten a resection was necessary and in six the operative wound was closed without further procedure. In twenty-seven cases it was necessary to deal with the intracapsular ligament, and in nine with the subcoracoid preglenoid ligament also. In two cases there was total softening of the head of the humerus which necessitated resection, and in others there were more or less marked changes in the head of the humerus and in the socket. In twenty-one cases the greater tuberosity was fractured and in two cases there was a fracture of the lesser tuberosity.

Not all of the injuries to the musculature were the immediate result of the dislocation since many of them could be attributed to unsuccessful attempts at reduction. Injuries to the musculature lead chiefly to interposition or contracture which impedes reduction.

The operation for reduction was performed under general anesthesia in only eight cases. In the others induction anesthesia according to the method of Kulenkampi was used. The patient sitting upon the operating table while the assistant held his arm bent at right angles. The technique of the operation and the replacement in both typical and complicated cases is described in detail.

#### DISLOCATIONS OF THE ELBOW

The ages of the patients with dislocation of the elbow ranged from 8 to 57 years. In thirty-seven cases reduction was effected by open operation but in nine cases resection was necessary. In thirty-seven cases the joint was dislocated backward, and in seven of these also toward the radial side. In one, the dislocation was toward the ulnar side and in one it was forward. In the cases of lateral dislocation the external epicondylar and either one or both of the lateral ligaments were torn off. A very frequent condition was swelling of the joint cartilage on the humerus and the formation of callus on the posterior surface of the arm and elsewhere. In fourteen cases the joint was ankylosed in extension. In a smaller number there was a moderate degree of mobility.

All of the operations were performed under induction anesthesia. Whenever possible, the joint was turned inward so that the ulnar side of the forearm touched the inner side of the arm. All cicatrices and interposed tissue were removed and a smooth bone surface was prepared. The procedure for the reduction varied in different cases. It was often possible to prevent luxation during the operation by extreme flexion. In cases in which the dislocation was not particularly complicated good function was obtained.

#### DISLOCATIONS OF THE HIP

The patients with dislocation of the hip ranged in age from 11 to 48 years and all of them were males.

There were nine cases of lumbo iliac dislocation, one of obturator dislocation and two of ischial dislocation. In nine cases reduction was effected by arthrotomy, but in three resection was necessary. All of the operations were done under conduction anaesthesia according to the method of Feppeler which was found to be entirely satisfactory. The incision was made from the posterior spine to the base of the trochanter and the gluteus maximus was separated. The joint socket was then exposed and cleared for the reduction, care being taken to preserve the various anatomical structures. The technique of the operation and reduction which varied for the different types of dislocation is described in detail.

No statement is made regarding the end results in these cases because on account of the war and its after effects no follow up of the patients was possible. The author therefore refers to the conclusions drawn by him in his first report stating that the results were probably just as good as those in the first series of cases.

ERLACHER (Z)

**Desgouttes D and Ricard A. The Treatment of Fractures of the Upper End of the Tibia** (A propos du traitement des fractures de l'extrémité supérieure du tibia) *J de chir* 1925 **xxvi** 481

Recently the operative treatment of fractures of the upper end of the tibia has won considerable favor. In fact some surgeons believe that it is the only treatment that will give proper apposition of the fragments and the best functional results.

The authors are not in favor of routine open operation considering as most important arguments against it the difficulty of fixing the fragments which are usually multiple and the fact that the spongy bone in this part of the tibia does not lend itself

well to the use of bone pegs or screws. They admit however, that open operation has the advantage of permitting early mobilization and more exact correction of the condylar deformity. Condylar deformity, uncorrected, will alter the normal support of the femur; this is true especially when the relations of the internal condyle of the tibia are disturbed.

Desgouttes and Ricard report in detail three cases and cite two cases of condylar fracture which were treated conservatively, comparing the X ray findings with the final functional results. Such a study shows that displacement of the internal condyle has a much less favorable prognosis than a similar displacement of the external condyle. The reason for this is that the axis of weight bearing passes through the internal rather than the external condyle.

The authors believe that conservative treatment combined with the usual auxiliary measures such as active and passive motion and massage will give results as good as those claimed for the open operation.

ARTHUR F. SAVA, M.D.

**Conn H R. Fractures of the Os Calcis. Diagnosis and Treatment** *Radiology* 1926 **vi** 228

The indications for the treatment of fracture of the os calcis are entirely dependent upon the existing deformity, and for the demonstration of the deformity the roentgenologist is chiefly responsible. The roentgenograms should always show the antero-posterior and lateral views.

Arthrodesis overcomes the symptoms arising from the persistent arthritis and relieves the peroneal spasm. Since this is without appreciable risk, Conn advocates it for cases of non union of the os calcis.

S. D. WOLFFBERG, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

MacDougall J G Arteriotomy for Embolus Obstructing the Circulation in an Extremity Illustrated by a Successful Case *Canadian M Ass J* 19 6, xvi 265

In embolism of the main arteries, arteriotomy to remove the embolus is sound in principle and reasonably safe in practice if it is done early. In the cases reported and collected by Key, a successful result was obtained only when the operation was performed in the first twenty four hours after the onset of the condition.

MacDougall reports a case of embolism of the left renal artery followed four days later by embolism of the common femoral artery. Arteriotomy of the common femoral artery was done under local anaesthesia with almost instantaneous improvement in the affected leg. When the patient left the hospital two weeks later he appeared normal and had normal use of the leg for eight months. At the end of that time he died suddenly of a heart attack.

J FRANK DOUGHTY, M D

## BLOOD, TRANSFUSION

Herzog F The Action of the Roentgen Rays on the Regeneration of Blood (Ueber die Wirkung der Roentgenstrahlen auf die Blutregeneration) *Strahlentherapie*, 1325, xix 759

To determine the action of the roentgen rays upon the regeneration of blood the author carried out experiments on seven guinea pigs from which large amounts of blood had been withdrawn. The animals were kept under observation for about three months.

Effective direct irradiation of the bone marrow apparently always retarded erythropoiesis but under certain conditions (which are not stated) a brief generalized irradiation favored the regeneration of blood. The latter effect is due probably, not to a direct, but to an indirect, action of the rays on the bone marrow perhaps through the agency of chemical substances formed by the rays. The author concludes that a generalized irradiation may prove beneficial in severe anemias.

The change in the leucocyte picture which occurs after such a weak irradiation is described, but nothing new is brought out. BOCK (G)

Perry, M C The Preservation of Blood for Transfusion *Wisconsin M J* 1926 xxv 123

The author states that it is possible to preserve living human red blood cells for several weeks in a solution of lithium citrate and dextrose. The blood for preservation is collected in a paraffin lined Kimp ton tube. The passage from the vein to the receiving

vessel should be of large diameter, as short as convenient, and absolutely clean. The preserving fluid consists in a 1.8 per cent lithium citrate solution and a 10 per cent dextrose solution made with freshly distilled water, autoclaved separately, and mixed just before use. Three volumes of dextrose solution, four volumes of blood, and five volumes of lithium citrate solution are used. Thus, for 500 c cm of blood, 375 c cm of dextrose and 625 c cm of lithium are required. The final concentration of the dextrose blood citrate mixture is 2.5 per cent dextrose and 0.75 per cent lithium citrate.

The blood is mixed immediately with the fluid and stored in an icebox. The red cells settle at the bottom of the containing vessel in from twenty four to thirty six hours. The supernatant fluid is slightly opaque and ranges in color from yellow to a greenish yellow. A pink tinge to the supernatant fluid indicates hemolysis caused probably by infection, therefore when this is noted the blood must be discarded.

When preserved blood is to be used, the supernatant fluid is removed through a tube by gentle suction as completely as possible. Sufficient 5 per cent dextrose solution is then added to restore the red cells to their original volume. The cell dextrose suspension is gently agitated with a rotary motion and poured through two layers of sterile gauze, which removes small clumps formed during sedimentation. The cell suspension is then warmed to body temperature and given by any convenient method.

The transfusion of preserved blood offers a means of meeting the requirements of emergencies associated with shock and hemorrhage, the supplies being instantly available. In chronic maladies, however, preserved blood is of less value than whole blood.

SAMUEL KAHN, M D

## LYMPH VESSELS AND GLANDS

Costain, W A Lymphatic Drainage *N York State M J* 1926 xxvi, 225

The operation of draining the thoracic duct in the neck is a new surgical procedure designed to overcome the septic absorption associated with diffuse peritonitis. Since this absorption occurs through the lymphatics into the thoracic duct, it was believed that the ligation and opening of the latter structure in the left side of the neck would prevent the septic products from entering the blood stream. These products are assumed to be the cause of the obstipation, distention, vomiting and cyanosis generally regarded as complications of peritonitis. They are contained in the lymph which is constantly being poured into the blood in quantities estimated at 2 qts a day. In peritonitis, this fluid comes from two

septic sources the peritoneal cavity and the infected tissue spaces through the lymphatics proper and the lumen of the bowel through the lacteals

In practically all of the cases in which the operation described has been performed it has been followed by marked improvement in the patient's condition. The sooner the duct was drained the better the results.

The author describes the operative technique and cites a number of cases.      SAMUEL KAEN M.D.

Voorhoeve N. Malignant Lymphogranulomatosis  
*Acta radiol.* 1925 iv 567

After a critical review of the literature the author reports the results of the radiological treatment of nineteen far advanced cases of malignant lymphogranuloma in which the diagnosis was confirmed by histological examination. He states that very much more favorable results can be obtained by this treatment than is generally believed.

The principles by which a rational radiological therapy should be guided and the manner in which it should be applied are discussed. Attention is called to the importance of treating each local affection with sufficiently large doses and of treating recurrences as soon as they appear. Tissues remaining healed after the treatment must not be exposed to any more irradiations than are absolutely necessary.

The author discusses also the frequent occurrence of the affection in the mediastinal and abdominal glands, the degree of leucopenia caused by the treatment which may be quite marked without giving rise to any permanent damage, the recognition of recurrences, the influence of the irradiation on the temperature and its significance in the diagnosis, the circumstances unfavorable for the prognosis and the contra indications to treatment.

Autopsy material shows that histological examinations during life sometimes do not permit a diagnosis of malignant lymphogranuloma.

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE, POSTOPERATIVE TREATMENT

Hendon G A Venoclysis or Intravenous Nutrition *Texas State J M* 1926 xii 662

Fluids and nutriment may be administered by venoclysis when they cannot be given by mouth proctoclysis, or subcutaneous injection. The author recommends a 5 to 10 per cent solution of dextrose in normal saline solution at the rate of sixty drops per minute.

The solution must be completely sterile and must reach the circulation at a temperature between 100 and 110 degrees F. Increased lachrymal secretion, oedema of the eyelids, and hypostatic pneumonia are evidences of supersaturation. An increase in the temperature, chills and headache may occur but these are not contra indications to the treatment.

Six cases with varied indications for the intravenous injection of glucose solution are reported.

MERLE R HOOF M D

## ANTISEPTIC SURGERY, TREATMENT OF WOUNDS AND INFECTIONS

Destefano F, and Vaccarezza R F The Treatment of Carbuncle in Man (*Tratamiento del carbunclo humano*) *Semana med* 1916 xiviii 165

From the treatment of 414 cases of carbuncle the authors conclude that the injection of peptone gives better results than the use of antcarbuncle serum or normal ox serum. In the 192 cases treated with peptone alone, the mortality was 10.93 per cent while in eighty two cases treated with antcarbuncle serum alone it was 15.85 per cent and in seventeen cases treated with normal ox serum alone it was 29.41 per cent. In 280 cases treated with peptone alone or combined with a serum, the mortality was 12.85 per cent, while in 141 cases treated with antcarbuncle serum alone or combined it was 19.14 per cent and in thirty three cases treated with normal ox serum alone or combined it was 21.21 per cent. Twenty six cases of cutaneous carbuncle with septicaemia were cured by injections of peptone.

These results indicate that the treatment of choice for carbuncle in man is the intramuscular injection of peptone. Not only is this more effective than the use of specific or normal serum but it does not cause serum sickness.

AUDREY G MORGAN M D

D Herelle F An Attempt to Treat Bubonic Plague with the Bacteriophage (*Essai de traitement de la peste bubonique par le bacteriophage*) *Presse med* Par 1925 xviii 1393

The author reports four cases of bubonic plague treated by the bacteriophage alone, the first cases he

has had the opportunity to treat under proper conditions. In every instance the clinical diagnosis was controlled by direct examination of material obtained from the buboes by inoculation of guinea pigs and by cultures. The case reports are supplemented by the temperature charts.

The bacteriophage employed was an especially active one obtained from the excreta of rats during an epidemic in Indo China. Injections were made directly into the buboes.

The first case which was seen on the third day presented all of the symptoms of the disease. The temperature reached 106.5 degrees F and there was marked prostration. In the afternoon an injection of 1 c cm of the bacteriophage was made into the buboes and by the following morning the patient's condition was completely changed. By the end of three days the temperature had fallen to approximately normal. With the improvement in the general condition the pain and tension in the buboes practically ceased. When the buboes were incised during convalescence their contents were found to be entirely sterile and an active bacteriophage was isolated.

The histories of the second and third cases were almost identical with the history of the first case. The time required for recovery was respectively three days and twenty four hours. The bacterial findings were the same.

The third case was seen on the second day of the disease. The temperature was then 104.5 degrees F, and the pulse 120. One cubic centimeter of the bacteriophage was injected immediately. On the following day slight improvement was noted but the heart showed the effects of a profound toxæmia. A second injection of 1.5 c cm was followed by a rapid fall in the temperature accompanied by corresponding improvement in the patient's general condition.

On the eighth day involvement of the opposite inguinal glands was noted. This had progressed with out any change in the temperature. Cultures from the bubo were negative, but inoculations into a guinea pig caused death at the end of ten days and a bacillus pestis which was resistant to the bacteriophage was isolated from the animal's spleen.

In all of these cases the bacteriophage has a marked antitoxic effect in addition to its bactericidal action. The same phenomena have been noted in the treatment of dysentery. The author concludes that the treatment is specific and as it does not produce a reaction it should be employed as early as possible without waiting for a certain diagnosis. Because of the uniformity of the bacillus pestis, a stock bacteriophage may be used.

ALBERT F DE GROAT M D



## ANÆSTHESIA

Boros J Cystic Purulent Cerebrospinal Meningitis Following Lumbar Anæsthesia Induced with Novocain (Cystische eitrige Meningitis cerebrospinalis nach Lumbalanæsthesie mit Novocain) *Therapia* 1925 11 118

In the period from April 17, 1906 to November 15, 1924, 1,439 operations were performed under local anæsthesia in the author's clinic. In fifty-five cases the anæsthesia was induced with 4 cgm of stovaine. In four (7.3 per cent) of this group it was unsatisfactory; in nine (16.3 per cent) bulbar symptoms appeared in the course of the operation; in one the patient collapsed; and in one the operation was followed by headache.

Tropococain was used in twenty-eight cases and 5 per cent novocain (2.5 cgm) in 1,356 operations. In sixty-one (4.49 per cent) of the cases in this group the anæsthesia was unsatisfactory; in 0.81 per cent bulbar symptoms appeared during the operation; in 293 cases (25.29 per cent) the operation was followed by headache; in one case paralysis of the ocular muscles occurred; and in one case meningitis developed.

This report is based upon the last case mentioned, that of a 25-year-old man who entered the hospital with an incarcerated inguinal hernia on the right side. Lumbar anæsthesia was induced satisfactorily. Twelve hours after the operation the patient developed a very severe headache, became restless and lost consciousness. After two hours all of the cardinal symptoms of inflammation of the meninges were noted. Forty per cent urotropin was given intravenously. Lumbar puncture disclosed a sterile turbid fluid under high pressure. Ten cubic centimeters of trypanflavin was given intravenously, and the intravenous injection of urotropin was repeated. The symptoms gradually regressed, and by the sixth day had ceased entirely. The novocain used was tested and found to be without fault.

Pautrier had a case in which similar symptoms followed the use of stovaine. Besides these two cases only two others of meningitis following lumbar

anæsthesia have been reported in the literature. The favorable outcome in the author's case is ascribed not to the medicaments administered, but to the decompressive lumbar puncture.

VON LOBMAIER (7)

Babcock W W Demonstration of Spinal Anæsthesia *Surg Clin N Am* 1926 VI 1

In the Samaritan Hospital, Philadelphia, spinal anæsthesia has been used in more than 20,000 cases. Babcock believes that when it is properly induced it is far safer than nitrous oxide-oxygen or ether anæsthesia. He has used it for 90 per cent of his more serious operations below the diaphragm. In acute abdominal infections it is unsurpassed. With no other method can an equal degree of anæsthesia be produced with as little effect upon the parenchymatous organs in the cases of patients suffering from diabetes, nephritis, cholæmia, or an acute or chronic respiratory disease.

The physiology of rachianæsthesia is that of transient root interruption, chiefly the posterior roots, with consequent analgesia and loss of tactile muscle and temperature sense. This block is essential to render operation painless. The anterior root block is essential to complete muscular relaxation, but as it also leads to a slowing and weakening of the heart action with a fall in the blood pressure, it may be hazardous.

If the anæsthesia involves only the lower lumbar and sacral roots, no effect on the blood pressure will result, but if the fibers supplying the great splanchnic vessels and those of the upper part of the body are involved, there will be a marked fall in the pressure, usually lasting for from fifteen to thirty minutes. This fall may be combatted by introducing fluid, especially serum or gum acacia solution, into the vessels. Adrenalin is also effective. For safety, the blood pressure is watched throughout each operation under spinal anæsthesia; the intravenous infusion apparatus is kept at hand, and the technique has been so perfected that the injection can be given in five minutes.

GEORGE R. McAUFLIFF, M.D.

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Sicard J A., and Forestier J The Present Status of Roentgenological Examination with Lipiodol (Estado actual de la exploración radiológica por el aceite yodado—lipiodol) *Rev méd d Barcelona* 1925 11, 572

Lipiodol as a contrast medium for roentgen diagnosis was first suggested by the authors in October, 1921. As the result of its use considerable progress has been made in roentgen diagnosis, particularly with regard to the subarachnoid space, the lungs, the pleura, and cold abscesses. The method is absolutely harmless. In more than 5,000 cases in which the authors have made lipiodol injections there were no deaths, and the only serious accident occurred when the injection was made into the cerebral ventricles. Moreover, the authors have found no reports of serious sequelae in the literature. Lipiodol is indicated for an area in which the ordinary methods of roentgenography are insufficient or dangerous.

In experiments on animals lipiodol has been injected intravenously for the study of the circulation in the capillaries. It has been found of value also for the study of fat embolism. In man it has been employed for the study of the cavities in the long bones under local anesthesia, an opening was made in the bone with a trephine. In this way it was possible to study the evolution of Paget's disease of Recklinghausen's osteitis fibrosa.

By having the patient swallow gelatin capsules containing 1 cc of lipiodol, the secretory activity of the stomach may be studied. The rupture of the capsule when its membrane has been digested can be easily seen on the screen. In normal subjects the capsule ruptures at the end of fifteen minutes, while in persons with hyperchlorhydria the time before its rupture may be decreased to from five to eight minutes and in those with hypochlorhydria or cancer it may be increased to from fifty to sixty minutes.

Lipiodol may be used also in examinations of the lachrymal tract, the maxillary sinus, the urethra, the uterine cavity, the fallopian tubes, the ventricles of the brain, fistulae, bone abscesses, lung cavities and the epidural and subarachnoid spaces.

In thirty seven cases of intramedullary tumor in which the authors have operated, the lipiodol diagnosis was correct in every instance. Several months ago the authors mixed lipiodol with olive oil, obtaining a mixture which is lighter than the cerebrospinal fluid and therefore rises in the vertebral canal. When in the case of a normal person 5 or 6 cc of this mixture is injected by the lumbar route, it will rise to the cerebral ventricles in fifteen minutes without causing pain. When the canal is obstructed, it will stop below the obstruction. It may be used in con-

nection with ordinary lipiodol to demonstrate the location of multiple tumors.

The article contains fourteen lipiodol roentgenograms of the lungs, sinuses, cerebral ventricles and vertebral canal. AUDREY G. MORGAN, M.D.

## MISCELLANEOUS

Kime J W Heliotherapy in Tuberculosis and a New Instrument for Its Use *Med J & Rec* 1926, CIVIL 164

The author claims precedence over Finsen in the treatment of tuberculous conditions by sunlight. His first article on the subject having been published in 1898.

Finsen found that concentrated sunlight kills bacteria fifteen times more rapidly than ordinary sunlight. The bactericidal action of sunlight is due to increased phagocytosis resulting from an inflammatory reaction with increased exudation of serum and migration of leucocytes. Pryor states that sunlight penetrates the body to a depth of 10 in., that concentration favors its penetration and that pigmentation favors the absorption of the ultraviolet rays. In bone and joint tuberculosis treated with sunlight pain is rapidly alleviated, the temperature gradually falls, the appetite gradually returns, weight and strength rapidly increase, and the condition of the blood improves.

As glass cuts out the ultraviolet rays, highly polished metal reflectors are used to concentrate the sunlight. The light is then passed through violet colored screens of celluloid which permit the passage of the ultraviolet rays. The condenser is 5 ft in diameter and utilizes all of the shorter rays of sunlight.

In pulmonary tuberculosis the patient is gradually accustomed to the condensed light and his bared chest then exposed to it for twenty minutes a day. This treatment is supplemented by exposure to the direct rays of the sun for three hours a day.

In glandular, joint, and surgical tuberculosis, the condensed violet rays are turned directly upon the parts affected. Response to the treatment is prompt.

LLEWELLYN R. LEWIS, M.D.

Clark W L Electrothermic Methods in the Treatment of Neoplastic and Allied Diseases *J Am M Ass* 1926 LXXVI, 595

Benign and malignant growths of small or moderate size may be destroyed by heat of just sufficient intensity to desiccate the tissues. The heat is produced by a monopolar high frequency current of the Oudin type. The desired effect is produced in the tissues by delivering the current through a short air space. This treatment is of advantage when the

lesion is localized and when good cosmetic results are not only desirable but essential. It can be controlled so perfectly that a small growth on the cornea for example may be successfully treated without impairment of vision by the subsequent formation of scar tissue and a small growth on the vocal cords may be destroyed without destroying the voice.

Other conditions successfully treated by the desiccation method are localized benign growths of the larynx, bladder and rectum, corneal ulcers, pterygium, trachoma, cervical erosion, urethral caruncles, moles, papillomata, angiomas, naevus pigmentosus, leucoplakia, lupus vulgaris and lupus erythematosus.

Coagulation is produced by a bipolar high frequency current of the d'Arsonval type. This treatment, which is more penetrating and intense than the desiccation method, is utilized to destroy larger growths and growths involving bone. As compared with the heat produced by high frequency currents that produced by the actual cautery is superficial in its action. The former is generated within the tissues by their resistance to the current, while the latter is merely transmitted by contact.

Whether desiccation or coagulation is used the aim should be to destroy the growth at a single sitting. As a rule the devitalized tissue should be removed immediately by excision or curettage. If necessary the base of the tumor may then be given further treatment. When the mucous surfaces are involved the destroyed tissue is usually allowed to separate slowly because of the greater danger of secondary hemorrhage in such areas. Bone that has been treated will sequestrate in about six weeks. If important blood vessels are involved it is safer to ligate them before the treatment.

As an example of an operation by the coagulation method amputation of the tongue is described. When the condition is far advanced and associated with considerable emaciation it is Clark's practice to do a preliminary gastrostomy. After the jaws have been separated by a mouth gag a heavy silk suture is passed through the tongue from side to side and by means of this suture the tongue is drawn well forward. The coagulation needle is then brought in contact with the anterior surface of the tongue as far back as necessary and a line of coagulation is made. The tongue is then elevated and the frenum and the juncture of the tongue with the floor of the mouth are coagulated. In the final step the tongue is excised through the coagulated area. After the operation the mouth is washed two or three times a day with a weak solution of sodium hypochlorite to deodorize it and to keep the slough free from maceration.

In addition to desiccating or coagulating the affected tissue and sealing the blood and lymph channels the heat penetrates beyond the area totally destroyed and devitalizes malignant cells without permanently impairing the healthy tissues, thus lessening the likelihood of local recurrences and conserving the maximum amount of normal tissue. Malignant cells, especially those that are least differentiated are devitalized by a lower degree of heat than normal cells.

The histopathological appearance of cells subjected to desiccation and coagulation was observed to be entirely different from that of cells treated with radium and the roentgen rays. Following desiccation the cells were shrunken and shriveled and their nuclei were condensed and elongated, but the cell outline could be made out. The tissue had assumed a mummified appearance. The blood vessels were thrombosed. There was no evidence of hemorrhage.

Following coagulation the cell outline was entirely lost and the affected tissue elements were fused into a structureless homogeneous mass suggesting hyalinization.

The cell reaction in the zone adjacent to the area treated was studied in guinea pigs and rabbits. Small areas of skin, subcutaneous tissue and muscle were subjected to desiccation or coagulation and the animals then returned to their cages. Sections removed several days later revealed practically the same tissue changes as those described but, in addition, round cell infiltration in the outlying zones. In certain areas this infiltration was localized about the blood vessels.

The electrothermic methods depend for their results on the resistance of the tissues to the current which is manifested in the production of heat. In desiccation the current is of comparatively low amperage and the degree of heat is only moderate but of sufficient intensity to cause complete evaporation of the water content of the cells and to give the cell a mummified appearance. Since the mode of cell death is associated with very little degenerative change and disintegration, only a small amount of fibrous tissue is formed as a result of desiccation, hence the good cosmetic results of this treatment. Incidentally, the neighboring healthy tissues are spared the devitalization caused by the formation of abundant contractile fibrous tissue.

The coagulation method, which requires a high amperage, induces a more intense heat which not only dehydrates the tissues but causes coagulation of the cell protoplasm which results in a proportionately greater amount of fibrous tissue.

LEWELLYN R. LEWIS, M.D.

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Brannan, D. Chloroma. The Recent Literature and a Case Report. *Bull Johns Hopkins Hosp* Balt, 1926, xxviii 189

The author reviews the literature on chloroma and brings the case reports up to 1925. He accepts the seventy four cases reported by Lehnndorff in 1910 adds fifty five cases collected from the literature and reports one case of his own, this making a total of 129 positive cases of chloroma up to 1925.

In practically all of the author's cases the condition was considered of myeloid origin. The diagnosis was based primarily on the blood picture and the histological structure of the tumor tissue and bone marrow. In all except a few cases of aleukæmia there was a definite, acute or chronic myelogenous leukæmia.

Brannan's patient was a young man suffering from myelogenous leukæmia with gradually developing and characteristic hard, flat cranial tumors, exophthalmos with marked visual and fundus changes, facial paralysis, impairment of hearing, and symptoms resembling those of mastoiditis and otitis media. There was marked roentgenological evidence of increased intracranial pressure and orbital and sinus growths. The white blood counts were relatively low for leukæmia but rather typical of chloroleukæmia. This case is reported in detail with the autopsy findings.

The author believes that the green color characteristic of chloroma is bound up with the myeloid cells. His conclusions are as follows:

- 1 Chloroma or chloroleukæmia is a myelogenous process, an unusual form of myelogenous leukæmia.

- 2 Aleukæmic stages of chloroma are common where, as proved, true aleukæmic forms of the disease are very rare.

- 3 Transitional or borderline and atypical cases emphasize the close relation between myelogenous leukæmia and chloroma or chloroleukæmia.

SHERLEY C. LYONS M.D.

Cochrane R. C. Notes on the Treatment of Surgical Complications of Diabetes Mellitus. *Boston M & S J* 1916 cxvii 247

Diabetic surgery may be divided into that of election and that of necessity. Since the war considerable progress has been made in the treatment of diabetes. Insulin has proved of great value but there is danger of depending too much on insulin and neglecting sound surgery. Insulin aids in the preparation of the patient for elective surgery and is a safeguard against acidosis following the use of ether.

For all major operations on the lower extremity the author prefers spinal anesthesia. Morphine and scopolamine may be used with it.

For operations on other parts of the body he employs nitrous oxide, oxygen or ethylene and gives a preliminary hypodermic injection of morphine. Novocain may be employed, but Cochrane does not use it in the feet for fear of causing gangrene. It may be employed in clean cases with a good blood supply.

Sepsis in diabetes is always an emergency because it lowers the tolerance for sugar. The possible benefit of operation should never be denied a patient unless he is moribund. When the septic condition has been relieved much may be accomplished. In the cases of septic patients a blood culture should always be taken before an operation but the operation should not be delayed for the report.

In the cases of very sick and infected diabetic patients operation should be done at once. The general condition may be improved by the subcutaneous infusion of saline solution, the administration of a soap-suds enema and the administration of from 100 to 150 gm of carbohydrate in the form of an orange. Insulin is not indicated at this stage, but can be used later by the physician.

Carbuncle usually demands immediate operation. In the author's cases Kanavel's crucial incision method is used. The wound is then packed loosely with hot boric acid compresses and covered with others which are changed frequently for twenty-four hours. The Carrel-Dakin method is employed with Dakin's solution or dichloramine T. In every case a good result has been obtained. Diabetics do not stand strong antiseptics.

Abscesses must be promptly incised as diabetics seem especially susceptible to infection. Stones in the gall bladder or elsewhere may convert a mild case of diabetes into a severe one.

Lesions of the feet almost always occur during or after middle age. The feet should be kept scrupulously clean and abrasions and blisters on the feet given careful treatment. In cases of infected or gangrenous feet conservation is often possible. Localized infection of the toes does not require amputation. Infected bone must be removed.

Primary gangrene is always the result of arterio-sclerosis. In dry gangrene there is no need for haste but the patient should be kept under close observation by the surgeon, put to bed and given exercises to promote the circulation and burn up sugar.

In the cases of extremely sick patients with a virulent infection and gangrene amputation of the lower extremity is best done in the mid thigh. In most other cases a leg amputation will suffice. No tourniquet is used. MARCUS H. HOBART M.D.

# GENERAL BACTERIAL, PROTOZOAN AND PARASITIC INFECTIONS

Pelouze P S and Viteri L E A New Medium for Gonococcus Culture *J Am Med Ass* 1926 lxxvi 684

The new medium for gonococcus culture described by the authors gives just as many positive first cultures as other media but the growth in the first cultures is usually less luxuriant. In subcultures however the growth is equal to that on other media. In all other respects except the luxuriance of the first cultures the new medium is vastly superior to other media. It is made as follows:

A calf's brain weighing approximately 500 gm is forced through wide meshed gauze into 500 c. cm of distilled water and the fluid placed in the icebox for twenty four hours and then filtered several times through cotton of various degrees of compactness. To the resultant fluid which is turbid no matter how often it is filtered are added 0.5 per cent of acid sodium phosphate and 1 per cent of peptone. The fluid is then autoclaved at a pressure of 15 lbs for twenty minutes and then kept as stock.

To complete the medium one part of the brain bouillon is added to three parts of standard 2.5 per cent agar medium made from veal broth with the addition of 0.5 per cent sodium chloride and 1 per cent of peptone. It is then adjusted to a Ph of 7.8 which allows for a reduction of two points in autoclaving 7.6 being the desired end point.

The medium is then tubed, autoclaved and slanted. After it solidifies the tubes are corked with sterile rubber corks to retain the water of condensation. After the medium has been completed and cooled there may be some flocculation in the butts of the tubes. This can be easily overcome by placing the medium in bulk in the autoclave quickly bringing it to a pressure of 15 lbs and then after filtering and tubing it replacing it in the autoclave for completion of the sterilization. While this process improves the appearance of the medium it seems to cause some change in it which renders the cultures more scanty therefore the authors do not use it.

The article is summarized as follows:

1. Provided the medium is good gonococcus culture is as easy as other ordinary cultures.

2. Much of the literature on the culture of the gonococcus should be rewritten because findings due to faults in the medium have been interpreted as peculiarities of the germ.

3. Our best media heretofore have been difficult to make have frequently become contaminated by the necessary handling could not be sterilized by heat and usually did not keep the germ alive for as long as a week. The new medium described is as simple to make as ordinary agar. It can be autoclaved after its completion it gives as many positive first cultures as other media it grows the germ in definitely in subcultures and it retains the vitality of the germ for at least one month.

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NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

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## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

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## CONTENTS

I	Index of Abstracts of Current Literature	iii
II	Authors	ix
III	Editor's Comment	\
IV	Abstracts of Current Literature	87 147
V	Bibliography of Current Literature	148 172



# CONTENTS—AUGUST, 1926

## ABSTRACTS OF CURRENT LITERATURE

### SURGERY OF THE HEAD AND NECK

- Eye**
- JACKSON, E Recent Mechanical Injuries to the Eyes Their Examination and Management 87
- DURR, S A The Operations for Glaucoma 87
- PFINGST A O Neoplasms of the Lachrymal Gland with a Report of Three Cases 87
- STRADA, F and ZAVALA A U Malignant Tumors of the Lachrymal Sac 88
- NUTT, A B The Result of Treatment by Artificial Light on Phlyctenular and Other Tuberculous Lesions of the Eye 89
- ADROGUÉ C Dendritic Degeneration of the Cornea 89
- ROETH A On the Question of Phaco Anaphylactic Endophthalmitis 89
- KOEPPÉ L Limitations of Slit Lamp Microscopy of the Living Eye and the Possibility of Overcoming Them 90
- ICOVE M D Intra Orbital Anæsthesia 90

### Ear

- CREED E and NEGUS V E Investigations Regarding the Function of Aural Cerumen 90
- CORLEY S and NUSBAUM D A New Method for Testing Hearing 91
- TAWSE, H B Three Cases of Suppuration in the Mastoid Cells with an Intact Tympanic Membrane 91

### Nose and Sinuses

- RUSKIN S L Puncture of the Maxillary Sinus 91
- MITHOEFER W Hyperplastic Maxillary Sinusitis 91
- ALESTADT W, and MARTENSTEIN, H Combined Operative and Irradiation Treatment of Cancer of the Nose and Accessory Sinuses 9
- QUICK, D The Use of Radium and the X Rays in the Treatment of Malignant Diseases of the Paranasal Sinuses 93

### Mouth

- BROCKBANK E M Dental Sepsis and Septicæmia 93
- QUICK D The Treatment of Carcinoma of the Tongue 94

### Neck

- JURA V Hemorrhagic Cysts of the Neck 94
- HARBURGER A An Anatomical Clinical and Roentgenological Study of the Normal and Abnormal Hyoid Apparatus in Man 95

- CASTEX R and SCHEINGART M Cholesterinæmia and Calcæmia in Thyroid Conditions Their Relation to the Basal Metabolism 95
- ARNEILL J R The Great Importance of the Thyroid in Relation to Certain Varieties of Heart Disease 95
- SIMPSON W M Three Cases of Thyroid Metastasis to Bones With a Discussion as to the Existence of the So Called 'Benign Metastasizing Goiter' 95
- BLUM F Studies on the Parathyroid Glands Their Secretion Their Importance for the Organism and the Possibility of Substituting for Them 96
- IGLALER S The Treatment of Chronic Laryngo tracheal Stenosis 96
- IERRERI G Cancer of the Larynx in Woman 97

### SURGERY OF THE NERVOUS SYSTEM

- Brain and Its Coverings, Cranial Nerves**
- HARRIS W and NEWCOMB W D A Case of Pontine Glioma with Special Reference to the Paths of Gustatory Sensation 98
- TIMEY W The Glandular Treatment of Pituitary Tumors and Hyperplasias 98
- GRANT F C The Results in X Ray Treatment of Early Pituitary Lesions 98
- FRAZIER C H The Surgical Management of Pituitary Lesions 98

### Spinal Cord and Its Coverings

- BRECHOT Idiopathic Incontinence of Urine and Laminectomy 98

### Sympathetic Nerves

- BONANI G Late Results of Perifemoral Sympathectomy in the Treatment of Varicose Ulcer 99
- LOMAN F D Observations on the Relation of the Sympathetic Nervous System to Skeletal Muscle Tonus 99
- BRANSBURG The Histopathological Changes in the Heart Muscle Following Sympathectomy 100

### SURGERY OF THE CHEST

#### Chest Wall and Breast

- GINSBURG S Pain in Cancer of the Breast Its Clinical Significance, with Special Reference to Bone Metastases 101
- RICHARDS G E X Rays and Radium in the Management of Breast Carcinoma 101



**Trachea Lungs and Pleura**

- FORESTIER J Roentgenological Exploration of the  
Bronchial Tubes with Iodized Oil (Lipiodol)  
MOLLER P F and VON MAGNUS R Investigations  
of Bronchial Affections by Means of Iodine  
Preparations Jodumbrin and Lipiodol  
PACKARD G B JR Empyema in Children

**Heart and Pericardium**

- ARNEILL J R The Great Importance of the Thyroid in Relation to Certain Varieties of Heart Disease  
BRANSBURO The Histopathological Changes in the Heart Muscle Following Sympathectomy

**SURGERY OF THE ABDOMEN****Abdominal Wall and Peritoneum**

- KOONTZ A R Muscle and Fascia Suture with Relation to Hernia Repair

**Gastro-Intestinal Tract**

- HAUDEK The Reliability of the Gastric Niche in the Diagnosis of Ulcer  
BUTALINI M Rational Surgical Treatment of Gastric and Duodenal Ulcer  
SOLÉ R The Indications and Technique of Gastrectomy  
EASTMOND C Gastro Intestinal Infection Its Roentgen Manifestations  
GOYENA J R and GALLINO M M A Case of Supramesocolic Duodenal Stenosis Due to Adhesive Periduodenitis of Ulcer Origin  
BARBARO A Case of Perforated Duodenal Ulcer Histological and Bacteriological Examination  
STULZ C and WORINGER P Peptic Ulcer of Meckel's Diverticulum  
PASCALE G Peptic Ulcer of Meckel's Diverticulum  
CASTEX M R ROMANO N and BERETTERVIDE J Insufficiency of the Ileocaecal Valve  
LARMORE J W and FISHER A O Tuberculosis of the Caecum  
OLAIN A Acute Appendicitis A Study Based on the Material of the Municipal Military Hospital of Moscow  
HERTZLER A E An Inquiry into the Nature of Chronic Appendicitis  
ROYSTON G D and FISHER A O Appendicitis in Pregnancy  
NEUMANN W Chronic Appendicitis According to the Statistics of the Municipal Military Hospital of Moscow  
ELLIASON E L Pylephlebitis and Liver Abscess Following Appendicitis  
CANTELMO O An Experimental Study of the Physiopathology of Ileosigmoidostomy  
MANDL F The Field of Application of the Primary and Secondary Drawing Through Procedure Following Resection of Rectal Cancer by the Sacral Route Also a Demonstration of the Possibility of Artificial Prolapse and Its Application

- POWILEWICZ A Imperforate Anus Corrected by Operation Associated Megacystoid  
MADELUNG O W Empalement Wounds of the Anus and Rectum  
Liver Gall Bladder Pancreas and Spleen  
FETTER W J The Present Status of Functional Tests of the Liver  
GRIER G W X Ray Diagnosis of Diseases of the Liver and Gall Bladder  
MACHLACHLAN W W G The Significance of Bile Pigment  
SNELL A M The Clinical Application of Recent Studies on Jaundice  
RODRIGUEZ M C Primary Hydropneumocyst of the Liver  
RICEN L Cholecystitis and Diabetes  
MARTIN E D Complete Cholecystostomy Versus Cholecystectomy in Cases of Empyema of the Gall Bladder  
GIORDANO D The Development of Carcinoma in Calculous Cholecystitis  
CASTEX M R and GALÁN J C Giardiasis of the Biliary Tract  
COFFEY R C Dilatation of the Common Bile Duct in the Absence of a Functioning Gall Bladder  
CHIRAY LEBON and GOZLAN A Study of External Pancreatic Insufficiency as Indicated by the Enzymes in the Duodenal Juice Removed with a Sound  
ESCUERO P TERRADA H M and GALLINO M M Cystic Tumors of the Head of the Pancreas Roentgenological Diagnosis  
ASHBY H T and SOUTHAM A H Splenic Anæmia of Young Children Treated by Splenectomy  
WHIPPLE A O Splenectomy as a Therapeutic Measure in Thrombocytopenic Purpura Hemorrhagica  
MAYO W J The Mortality and End Results of Splenectomy  
LEOTTA N A Contribution on the Surgery and Physiology of the Spleen Changes in the Blood Picture and Basal Metabolism Caused by Splenectomy

**Miscellaneous**

- PATEL and LABRY Large Closed Cysts of the Urachus

**GYNECOLOGY****Uterus**

- VANVERTS J The Obstetrical Results of Shortening of the Round Ligament  
VOGT E Prolapse Operations and the Ability to Bear Children  
SEYMOUR H F Endoscopy of the Uterus With a Description of a Hysteroscope  
CRON R S Chancres of the Cervix with a Report of Two Cases  
MOSHER G C The Incompatibility of Pregnancy and Fibroids of the Uterus

WEIS E A The Treatment of Fibroids of the Uterus

KUESTNER H Investigations of the Changes in Internal Secretion After Extirpation of the Uterus Operative Castration and Roentgen Castration and in the Normal Climacterium

### Adnexal and Peruterine Conditions

DANIEL C A Study of the Interstitial Portion of the Normal Fallopian Tube

### Miscellaneous

FOGELSON S J The Non Specific Antigenic Effect of Spermatozoa upon Fertility

FLORIS M Obliteration of the Ureter in Gynecological Practice and the Resulting Hydronephrosis

## OBSTETRICS

### Pregnancy and Its Complications

ROYSTON G D, and FISHER A O Appendicitis in Pregnancy

MOSHER G C The Incompatibility of Pregnancy and Fibroids of the Uterus

MAHNERT A Studies of the Effect of Iodothyroglobulin on Diuresis and Metabolism in Pregnancy

DUJOL G and CLEMENT R Spontaneous Rupture During Pregnancy of a Uterus Previously Subjected to Cesarean Section

RIDDEL J Rupture of the Uterus During Pregnancy

FORGET URION Pregnancy Complicated by Fibroids

DUBOUCHER H Sudden Torsion of a Dermoid Cyst of the Ovary Involving the Tube During Pregnancy, Operation Continuation of the Pregnancy

DUBOUCHER H Slow and Progressive Torsion of a Mucoid Cyst of the Ovary in the Fourth Month of Pregnancy Ovarianectomy Cure Continuation of the Pregnancy

DRENNAN A M and HICKS C S Pathological and Chemical Changes in Hyperemesis of Pregnancy

HARDING V J and VAN WICK, H B Diet in the Treatment of Pre Eclampsia

### Labor and Its Complications

AVERETT L The Value of the Kielland Forceps in Obstetrics

FERRERE M A Case of Serious Eclampsia During Labor, Fourteen Convulsions and Slight Loss of Consciousness, Injection of 1 Ccgm (18 gr) of Morphine (Upper Limit) in Ten Hours Low Forceps Delivery After Episiotomy for Atresia of the Vulva Delivering of a Living Infant Weighing 3150 Gm, Cure of the Mother and Survival of the Infant

### Puerperium and Its Complications

WUESTHOFF H A Review of Puerperal Deaths in the Last Twenty Six Years

FORBES J H and FRASER W A The Treatment of Puerperal Infection

### Newborn

119 DICKEY L B A Study of an Epidemic of Impetigo in Newborn Infants 123

## GENITO URINARY SURGERY

### Adrenal, Kidney, and Ureter

CHUTE A L A Study of Some Cases of Hypernephroma 16

CIRILLO, G Bacteriological Studies of Cases of Perineal Suppuration 126

MERCIER O The Pathogenesis and Treatment of Slight Idiopathic Hydronephrosis 126

LAQUIERE M Serous Cysts of the Kidney and Conservative Operation 126

CONDAMIN Vitiation of the Results of Nephrectomy for Unilateral Tuberculosis by Tuberculous Lesions Outside the Kidneys 127

COMMENCE and PASTEAU Deaths from Nephrectomy for Tuberculosis Based on the Constant 127

108 IBUKA K Function of the Autogenous Kidney Transplant 1

119 IBUKA K Function of the Homogenous Kidney Transplant 18

111 PAPIN M Anuria for Seven Days After Catheterization of the Ureters 18

BOEHRINGER K Ureteral Stone Non Operative Instrumental Removal 128

121 FLORIS M Obliteration of the Ureter in Gynecological Practice and the Resulting Hydronephrosis 129

### Bladder, Urethra, and Penis

12 REJSEK J An Unusual Case of Rupture of the Bladder During Cystoradiography 129

BAZY P Absence of a Shadow in Roentgenography for Vesical Calculi 130

122 WALLACE W J Unusual Bladder Obstruction 130

SCHÉELE K Granular Cystitis Nodular and Cystic 130

### Genital Organs

13 SHAW E C Epidural Anaesthesia for Perineal Prostatectomy An Experimental and Clinical Study with a Report of 100 Consecutive Cases 131

KEYES E L An Operation for Incontinence of Urine Following Perineal Prostatectomy 131

123 GAYET G and PEYCELOV, R Pyelonephritis After Prostatectomy 131

### Miscellaneous

BÉCHOR Idiopathic Incontinence of Urine and Laminectomy 98

## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

### Conditions of the Bones, Joints, Muscles, Tendons, Etc

HARBIN M Non Suppurative Osteomyelitis with the Report of an Unusual Case 133

- CODMAN F A Registry of Bone Sarcoma I Twenty Five Criteria for Establishing the Diagnosis of Osteogenic Sarcoma II Thirteen Registered Cases of Five Year Cures Analyzed According to These Criteria 133
- COLE W H Chondrodysplasia 133
- CUMBERBATCH F P and POBINSON C A Non Infective Arthritis in Women 134
- SYME W S and CAPPELLI D F A Case of Chordoma of the Cervical Vertebra with Involvement of the Pharynx 134
- ROLLIER A Pott's Disease 135
- BERRY J M A Theory as to the Cause of Perthes Disease Based on Ontogenetical Findings 135
- MOLLER P F The Clinical Observations After Healing of Calvé Perthes Disease Compared with the Final Deformities Left by That Disease and the Bearing of Those Final Deformities on the Ultimate Prognosis 136
- Surgery of the Bones Joints Muscles Tendons Etc**
- COTTON F J Disinfection of Septic Joints 136
- LAURELLE J Resection of the Lower End of the Humerus for a Gunshot Wound Findings Eight Years After the Operation 136
- LYLE H H M Skin Plastics in the Treatment of Traumatic Lesions of the Hand and Forearm 136
- MAYER W Tendon Transplantations for Division of the Extensor Tendon of the Fingers 136
- MACKINNON A I Plaster Shells in the Treatment of Tuberculosis and Fracture of the Spine 137
- MOORHEAD J J Arthrotomy for Knee Joint Calcification 137
- OLLERENSHAW R The Surgical Treatment of Dangle Foot 138
- Fractures and Dislocations**
- THOMSON J E M Leverage and Levers in the Reduction of Fractures 138
- RITTER H H LAMER W W WARTZEL G L and GOLDBLATT D Fractures About the Elbow Joints A Review of 150 Cases Followed up in Fifty Two Cases 138
- SURGERY OF BLOOD AND LYMPH SYSTEMS**
- Blood Vessels**
- BOVANI G Late Results of Perifemoral Sympathectomy in the Treatment of Varicose Ulcer 99
- Blood Transfusion**
- BROCKBANK E M Dental Sepsis and Septicæmia 93
- CASPER and WINTERFART M Cholesterinaemia and Calcæmia in Thyroid Conditions Their Relation to the Basal Metabolism 93
- LEOTA N A Contribution to the Surgery and Physiology of the Spleen Changes in the Blood Picture and Basal Metabolism Caused by Splenectomy 117
- SMILE WEIL and STIEFFEL A Case of Marked Hemophilia in the Course of Icthiatic Icterus From fusions Operation Followed by Recovery 139
- Lymph Vessels and Glands**
- JACOBSON J The Treatment of Tuberculous Lymphadenitis by Cinnamic Benzyl Ether 139
- ROLLESTON SIR H WOOLBRIDGE G H FLETCHER H M PLUGH L and Others Hodgkin's Disease in Man and Animals 139
- SURGICAL TECHNIQUE**
- Operative Surgery and Technique Postoperative Treatment**
- PALMER L J Surgery in the Presence of Diabetes Mellitus 141
- BIGGER I A Hypertonic Sodium Chloride Solution Intravenously in the Treatment of Extensive Superficial Burns 141
- SMITH F A Rational Management of Skin Crafts 141
- Anæsthesia**
- ICOVE M D Intra Orbital Anæsthesia 90
- SHAW E C Epidural Anæsthesia for Perineal Prostatectomy An Experimental and Clinical Study with a Report of 100 Consecutive Cases 131
- MEEKER W R Recent Developments in the Technique of Regional Anæsthesia 142
- PHYSICO-CHEMICAL METHODS IN SURGERY**
- Roentgenology**
- KLEIN W and MARTENSTEIN H Combined Operative and Irradiation Treatment of Cancer of the Nose and Accessory Sinuses 92
- QUICK D The Treatment of Carcinoma of the Tongue 94
- HARBURGER A An Anatomical Clinical and Roentgenological Study of the Normal and Abnormal Hyoid Apparatus in Man 93
- GRANT T C The Results in X Ray Treatment of Early Intra-uterine Lesions 98
- RICHARDS G E X Rays and Iodine in the Management of Breast Carcinoma 101
- FORESTER J Roentgenological Exploration of the Bronchial Tubes with Iodized Oil (Lipiodol) 101
- MOLLER I F and VON MAGNUS R Investigations of Bronchial Affection by Means of Iodine Preparations Iodumbrin and Lipiodol 102
- HAUDEK The Reliability of the Gastric Niche in the Diagnosis of Ulcer 104
- EASTMOND C Gastro Intestinal Infection Its Roentgen Manifestations 105
- GRIER G W X Ray Diagnosis of Diseases of the Liver and Gall Bladder 111
- ESCUERO L TERRADA H M and GALLINO M Cystic Tumors of the Head of the Pancreas Roentgenological Diagnosis 115
- REJEK J An Unusual Case of Rupture of the Bladder During Cystoradiography 119

BAZI P Absence of a Shadow in Roentgenography for Vesical Calculi

BERRY J M A Theory as to the Cause of Perthes Disease Based on Roentgenological Findings

WETTERSTRAND G A Roentgen Therapy in Surgical Tuberculosis

BARDEEN C R The Biological Effects of Roentgen and Gamma Rays

KUESTNER H Investigations of the Changes in Internal Secretion After Extirpation of the Uterus Operative Castration and Roentgen Castration and in the Normal Climacterium

#### Radium

QUICK D The Use of Radium and the X Rays in the Treatment of Malignant Diseases of the Paranasal Sinuses

McHUTCHISON J P and BROWN W H A New Development in Radium Therapy

#### Miscellaneous

REYN A The efficacy of Various Sources of Light in General Light Bath Treatment

#### MISCELLANEOUS

130 Clinical Entities—General Physiological Conditions

135 OCKIN A Acute Appendicitis A Study Based on the Material of the Municipal Military Hospital of Moscow 108

143 HERTZLER A E An Inquiry into the Nature of Chronic Appendicitis 108

143 NEUMANN W Chronic Appendicitis According to the Statistics of the Municipal Military Hospital of Moscow 100

147 SEQUIERA J H CHEATLE G I HANDLEY, W S COPE Z and SHAW E H Precancerous States 145

MORTON J J Cancer of the Skin 145

NICHOLS J H GOODHUE, F W CHAMPION, M E BIGELOW G H and LOMBARD H L Cancer in Massachusetts 146

93 CRILE G W The Contact of the Surgeon with the Problem of Cancer 147

#### Ductless Glands

KUESTNER H Investigations of the Changes in Internal Secretion After Extirpation of the Uterus Operative Castration and Roentgen Castration and in the Normal Climacterium 147

## BIBLIOGRAPHY

## Surgery of the Head and Neck

Head	148
Eye	148
Ear	149
Nose and Sinuses	149
Mouth	150
Pharynx	150
Neck	150

## Surgery of the Nervous System

Brain and Its Coverings Cranial Nerves	151
Spinal Cord and Its Coverings	152
Peripheral Nerves	152
Sympathetic Nerves	152
Miscellaneous	152

## Surgery of the Chest

Chest Wall and Breast	152
Trachea Lungs and Pleura	153
Heart and Pericardium	153
Esophagus and Mediastinum	153
Miscellaneous	153

## Surgery of the Abdomen

Abdominal Wall and Peritoneum	154
Gastro Intestinal Tract	154
Liver Gall Bladder Pancreas and Spleen	156
Miscellaneous	158

## Gynecology

Uterus	158
Adnexal and Peritoneal Conditions	159
External Genitalia	159
Miscellaneous	160

## Obstetrics

Pregnancy and Its Complications	161
Labor and Its Complications	162
Puerperium and Its Complications	163
Newborn	163
Miscellaneous	163

## Genito-Urinary Surgery

Adrenal Kidney, and Ureter	164
Bladder Urethra and Penis	164
Genital Organs	165
Miscellaneous	165

## Surgery of the Bones Joints Muscles, Tendons

Conditions of the Bones Joints Muscles Tendons	165
Etc	165
Surgery of the Bones Joints Muscles Tendons	167
Etc	167
Fractures and Dislocations	167
Orthopedics in General	168

## Surgery of the Blood and Lymph Systems

Blood Vessels	168
Blood Transfusion	168
Lymph Vessels and Glands	169

## Surgical Technique

Operative Surgery and Technique Postoperative	169
Treatment	169
Antiseptic Surgery Treatment of Wounds and	169
Infections	169
Anesthesia	170
Surgical Instruments and Apparatus	170

## Physicochemical Methods in Surgery

Röntgenology	170
Radium	170
Miscellaneous	170

## Miscellaneous

Clinical Entities—General Physiological Conditions	171
General Bacterial Protozoan and Parasitic Infec	171
tions	171
Ductless Glands	171
Surgical Pathology and Diagnosis	172
Experimental Surgery	172
Hospitals Medical Education and History	172

## AUTHORS

OF THE ORIGINAL ARTICLES ABSTRACTED IN THIS NUMBER

- Adrogué E, 89  
 Arneill J R 95  
 Ashby, H T 115  
 Averett, L, 123  
 Barbaro 106  
 Bardeen C R 143  
 Bazy, P, 130  
 Beretervide, J J 107  
 Berry, J M 135  
 Bigelow G H, 146  
 Bigger I A 141  
 Blum F 96  
 Boehringer, K, 128  
 Bonani G 99  
 Bransburg, 100  
 Bréchet, 98  
 Brockbank E M 93  
 Brown, W H, 143  
 Bufalini M 104  
 Cantelmo O 110  
 Cappell D F, 134  
 Castex M R 107 114  
 Castex R, 95  
 Champion M E 146  
 Cheate, G L, 145  
 Chiray, 114  
 Chute, A L 126  
 Cirillo G 126  
 Clément R 121  
 Codman E A 133  
 Coffey R C 114  
 Cohen S 91  
 Cole W H 133  
 Coman F D 99  
 Commenge, 127  
 Condamin, 127  
 Cope Z 145  
 Cotton, F J 136  
 Creed, E 90  
 Crile G W, 147  
 Cron R S, 118  
 Cumberbatch, L P, 134  
 Daniel C, 120  
 Dickey, L B, 125  
 Drennan A M 123  
 Duboucher H 122  
 Dupol G, 121  
 Durr S A, 87  
 Eastmond C 105  
 Elavson E L 109  
 Emile Weil 139  
 Escudero P, 115  
 Ferrere M 124  
 Ferreri G 97  
 Fetter W J 111  
 Fisher, A O 101, 108  
 Fletcher H M 139  
 Floris M 10  
 Fobes J H, 124  
 Fogelson S J 10  
 Forestier J 101  
 Forget Union 122  
 Fraser, W A, 124  
 Frazier C H 98  
 Galán J C 114  
 Gallino, M M 106 115  
 Gayet G 131  
 Ginsburg, S 101  
 Giordano, D 113  
 Goldblatt D 138  
 Goodhue I W 146  
 Goyena, J R 106  
 Gozlan, 114  
 Grant F C, 98  
 Grier G W 111  
 Handley W S 145  
 Harbin, M 133  
 Harburger A 95  
 Harding V J 123  
 Harris W 98  
 Haudek, 104  
 Hertzler A C 108  
 Hicks C S 123  
 Ibuka K 128  
 Icove M D 90  
 Iglaier S 96  
 Jackson, E 87  
 Jacobson J, 139  
 Jura, V 94  
 Keyes E L 131  
 Klestadt W, 9  
 Koeppe, L 90  
 Koontz A R 104  
 Kuestner, H, 147  
 Labry 117  
 Laquiere M 126  
 Larimore J W 107  
 Lasher W W, 138  
 Latreille J, 136  
 Lebon, 114  
 Leotta N 117  
 Lombard H L, 146  
 Lyle H H M 136  
 Machlachlan, W W G, 111  
 Mackinnon A P, 137  
 Madelung O W, 111  
 Mahner A 121  
 Mandl F 110  
 Martenstein H 9  
 Martin, E D 113  
 Mayer L 136  
 Mayo W J 116  
 McHutchinson J P 143  
 Meeker W R, 14  
 Mercier O 126  
 Mithoefer W, 91  
 Moller P F 102, 136  
 Moorhead J J, 137  
 Morton J J 145  
 Mosher G C, 119  
 Negus V E 90  
 Neumann W 109  
 Newcomb W D 98  
 Nichols J H 146  
 Nussbaum D 91  
 Nutt A B, 89  
 Ockin A 108  
 Ollerenshaw R, 138  
 Packard G B Jr 103  
 Palmer L J 141  
 Papin M 18  
 Pascale G 107  
 Pasteau 127  
 Patel 117  
 Peycelon R 131  
 Plingst A O 87  
 Powlewicz A 111  
 Pugh L 139  
 Quick D 93, 94  
 Rejssek, J, 129  
 Reyn A 144  
 Ruen, L, 113  
 Richards, G E, 101  
 Riddel J, 121  
 Ritter, H H, 138  
 Robinson C A 134  
 Rodriguez, M C, 112  
 Roeth, A, 89  
 Rolleston Sir H, 139  
 Rohrer, A 135  
 Romano N, 107  
 Royston G D, 108  
 Ruskin, S L, 91  
 Scheele, K, 130  
 Schteingart, M 95  
 Sequera J H, 145  
 Seymour H F 118  
 Shaw, E C, 131  
 Shaw E H, 145  
 Simpson, W M, 95  
 Smith, F 141  
 Snell A M 112  
 Solé R, 105  
 Southam A H, 115  
 Stueffell 139  
 Strada F, 88  
 Stulz, E 106  
 Syme W S 134  
 Tawse H B 91  
 Terrada, H M, 115  
 Thomson J E M, 138  
 Timme, W, 98  
 Vanverts J 118  
 Van Wyck, H B, 13  
 Vogt E, 118  
 Von Magnus, R, 102  
 Wallace W J 130  
 Weiss E A 119  
 Wetterstrand G A 143  
 Whipple A O 115  
 Woolbridge G H 139  
 Wornger P, 106  
 Wuesthoff H 14  
 Wurtzel G L 138  
 Zavaglia, A U 88

## EDITOR'S COMMENT

THE question of malignant disease of the lachrymal gland and of the nose and paranasal sinuses presents a particularly interesting problem both from the point of view of pathology and of treatment. The complex nature of such growths and the difficulty of assigning them to definite pathological groups have long been recognized. Because of their accessibility it would seem that their presence should be recognized early in the course of the disease and that they would afford a peculiarly favorable opportunity for determining the efficacy of irradiation and other non surgical methods of treatment. Four abstracts in the present issue of the INTERNATIONAL ABSTRACT OF SURGERY two by Pfingst (p. 87) and Strada and Zavala (p. 88) upon tumors of the lachrymal sac, and two by Quick (p. 93) and Klestadt and Martenstein (p. 92) upon malignant disease of the nose and paranasal sinuses summarize some recent contributions concerned with this problem. Because of the failure of intensive irradiation to control the growth and because of occasional serious roentgen injuries Klestadt and Martenstein recommend irradiation in fractional doses. Quick recommends particularly the use of buried radium emanation in gold tubes—a method which permits both the use of very small tubes and exclusion of the irritating beta rays. This application is supplemented by external doses of X ray or radium or both and later by crutery removal of the irradiated tumor tissue.

Codman's resume of the work of the Registry of Bone Sarcoma and his discussion of the symptoms and course of osteogenetic sarcoma (p. 133) represent some of the helpful results of his earnest efforts to collect and study every reported case of bone sarcoma. The fact that he has been able to study 650 cases indicates not only the magnitude of the task he has undertaken, but also future possibilities in the development of our knowledge of bone tumors. As Codman has pointed out so often and earnestly, the greatest hope for the successful attack of the problem of malignancy lies in the co operative efforts of the entire medical and surgical profession.

Floris' paper upon obliteration of the ureter in gynecological practice (p. 129) touches upon an important problem in gynecological surgery. Gayet and Peycelon's warnings with reference to pyelonephritis as a postoperative complication of prostatectomy (p. 131) emphasize a possible serious factor in a condition all ready difficult of treatment.

Codman's observations of the relation of the sympathetic nervous system to skeletal tonus (p. 99) and Brechot's report of the results of laminectomy in cases of "idiopathic" incontinence of urine (p. 98) concern neurological problems of interest and importance. Rollier's description of his method of treatment of Pott's disease (p. 135) indicates the results that may be attained with heliotherapy applied under suitable conditions.

# INTERNATIONAL ABSTRACT OF SURGERY

AUGUST, 1926

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### EYE

Jackson E. Recent Mechanical Injuries to the Eyes Their Examination and Management *Northwest Med* 1926 xiv 138

Jackson calls attention to the fact that the effects of contusions of the eyeball may be unrecognized in a superficial examination because external evidence of grave internal lesions may be absent, and that there may be no evidence of serious trouble at the first ophthalmic examination because such injuries as fracture of the orbit do not immediately affect the eyes. Contusions may cause cataract without rupture of the capsule, but the opacity may not be noted for months. The examination following a contusion should therefore include inspection, palpation for changes in tension, and X ray examination for fractures and foreign bodies.

Perforating injuries may have few external signs upon which the diagnosis may be made. Small wounds close quickly, many parts do not bleed and the tension may be restored in a few hours. Two lacerations may occur from the same accident, as when a shot passes through one side and out the other. The nature of the missile and the direction from which it came should be determined. The presence or absence of a foreign body must be established definitely. Because of the long exposure made so frequently in roentgen ray examinations foreign bodies may not be detected by the X ray if they are very small. As a rule all foreign bodies in the eyeball should be removed as soon as possible. The conditions under which a departure from this rule may be considered are very rare. VIRGIL WESCOTT M.D.

Durr S A. The Operations for Glaucoma. *Am J Ophth* 1926 35 ix 174

This report was a thesis submitted for the degree of M.S. in Ophthalmology at the University of Pennsylvania. The better known operations for glaucoma are compared as to their value in different types of cases, and an attempt is made to determine

the best operation for each type of glaucoma. The conclusions are based upon a survey of the literature.

Iridectomy, trephining, iridotomy and cyclo dialysis are fully covered while the Lagrange operation, peripheral iridotomy, iridencleisis and cyclectomy are discussed briefly. The use of adrenalin in glaucoma as compared to posterior sclerotomy is reviewed.

The conclusions drawn from fifty-eight original articles are as follows:

1. No one operation can be used in all cases.
2. In acute glaucoma the procedure of choice is iridectomy, with the use of adrenalin or a preliminary posterior sclerotomy, if needed. Trephining or iridotomy is permissible.
3. The Elliot trephine should be used in chronic non congestive glaucoma especially with contracted fields. Iridotomy may be done. Cyclo dialysis may be tried first, the trephine being reserved for resistant cases.
4. Iridectomy should be performed in glaucoma due to swelling of the lens.
5. Buphthalmos is best combated by trephining or repeated posterior sclerotomies.
6. Cyclo dialysis should be used in glaucoma due to disease of the retinal vessels and may be done in the cases of patients who have chronic conjunctivitis.
7. Adrenalin has been found of value in ophthalmoscopic examination, as a therapeutic agent and an aid in operation.

Pfingst A O. Neoplasms of the Lachrymal Gland with a Report of Three Cases. *Arch Ophth* 1926 lv 139

Warthin was the first accurately to describe the pathogenesis of tumors of the lachrymal gland. The first case of such a tumor was reported by Hildanus in 1598. The first authentic case in which a microscopic examination was made was reported by Becker in 1867.

Warthin's report covers all of the cases in the literature up to 1921, a total of 132. The neoplasms



in these cases are described by widely different terms ranging from simple hypertrophy to malignant growths of epithelial and fibrous nature. According to the diagnosis they represent forty four varieties of tumor. Warthin concluded however that the majority were mixed tumors of endothelial origin identical with the slowly growing mixed tumors of the salivary glands. In his opinion these new growths are peculiar to the serous variety of gland structure which is found in the lachrymal and parotid glands and a part of the submaxillary glands. The proper term for them he believes is endothelioma.

Haslinger also accepted the theory of the endothelial origin of these tumors but Verhoeff in a report of five cases stated that they arise from epithelial cells. Greeve who completed the bibliography after Warthin's report classifies them into two main groups (1) mixed tumors and (2) tumors characterized by overgrowths of small round cells in the gland stroma a condition known as Mikulicz disease. In the first group he places the following types:

1. Tumors in which the gland tubules have a scant amount of fibrous or myxomatous tissue some lymphoid tissue some flattened epithelium some prickly cells and often cartilage which are surrounded by a rather dense capsule of white fibrous tissue and are usually slow in development. Such tumors are not associated with enlargement of the glands and have never been known to lead to general metastasis. They usually occur in adults. After removal they show no tendency to recur.

2. Tumors made up almost entirely of myxomatous stroma containing some branch columns of cells resembling epithelial cell.

3. Tumors of the cylindroma type which microscopically resemble adenocarcinoma never contain cartilage and have little or no surrounding capsule. Clinically these are the most malignant.

Mikulicz disease is apparently not a neoplastic growth but merely an enlargement of the gland due to cell infiltration.

The latest and most comprehensive contribution on this condition was made by Lane in 1922. In a very careful survey of the literature Lane was able to find only 256 authentic cases.

The author believes that the nomenclature of lachrymal gland tumors should be based solely on their microscopic make up and that the species of the tumor should be determined by the nature of the prototype cell.

The clinical course of tumors of the lachrymal gland varies considerably. The majority of such growths develop very slowly in the early stages, a long period of inactivity preceding their active development. It is probable that the slowness of their growth is due to the dense capsule.

These tumors are seen in persons past middle age. No doubt they begin earlier but because of their slow growth and their lack of symptoms they are unnoticed until they reach a considerable

size and cause exophthalmos. The average size of those that have come to operation has been that of a pigeon's egg but some were as large as a hen's egg. Occasionally there are several smaller tumors adjacent to the large one. Most lachrymal gland tumors are nodular and firm. In a few cases a history of early pain has been given. Some patients complain of transitory diplopia and blurring of vision. Ultimately vision may become quite defective as the result of astigmatism from the pressure of the tumor on the cornea papillitis hyperæmia of the papilla or optic nerve atrophy.

A clinical division of the tumors into benign and malignant is impossible because they are practically all potentially malignant.

Early and complete removal of the entire mass with retention of the eyeball is the indicated treatment. The method of removal depends upon the size of the tumor. In a few cases in which it is large the Kroenlein operation is indicated. No case of recurrence after the Kroenlein operation has been reported. The removal of quite large tumors can be effected readily and with little or no deformity through an incision along the orbital edge.

L. L. McCoy M.D.

Strada F., and Zavala A. U. Malignant Tumors of the Lachrymal Sac (Contribución al estudio de los tumores malignos del saco lagrimal). *Semanario médico* 1923, XXXI, 1100.

A man of 57 years had noted increasing lachrymation of the left eye for several months. For several years he had had chronic nasal catarrh maxillary sinusitis on the left side and mucous polyps in the nasal fossæ. These had been cured by operation but recently the catarrh and nasal polyps had recurred. Shortly before the beginning of the epiphora a hard round swelling appeared in the left lachrymal sac and gradually increased in size. Pain then began in the left lachrymal region and extended backward involving half of the head and increasing in severity.

Examination revealed in the lachrymal sac a fibrous tumor over which the skin was freely movable. The neoplasm extended backward and seemed to be incorporated with the internal wall of the orbit. The lachrymal canal was permeable. The Wassermann test was negative.

The tumor and lachrymal sac were removed under local anesthesia. This was not difficult as there were no adhesions except for a short distance to the periosteum of the floor of the orbit. When the perosteum was dissected off, the bone appeared normal.

Histological examination of the tumor showed it to be a carcinoma. The patient was given one roentgen treatment and then went to another town where he was given one irradiation with radium but refused to continue the treatment because of the intense pain which followed it. He died of recurrence in the maxillary sinus and a metastasis in one kidney about a year later.

Only twenty five such tumors have been reported in the literature. They frequently follow chronic

**dacryocystitis** There is a pretumoral stage of dacryocystitis or epiphora a second period in which the tumor is visible and a third period of generalization and cachexia A differential diagnosis from dacryocystitis is impossible in the first stage and the diagnosis is seldom made before the tumor appears In the majority of the cases the condition has been fatal and in the few in which the operation seems to have resulted in a cure it is too early to determine whether the cure is permanent The author believes that roentgen and radium therapy may be effective Although his patient refused to continue the irradiation treatment, the tumor did not recur at its original site

AUDREY G MORGAN M D

**Nutt A B The Result of Treatment by Artificial Light on Phlyctenular and Other Tuberculous Lesions of the Eye** *Brit J Ophthalmol* 19 6 4, 138

Tuberculosis and rickets have yielded to constant exposure to sunlight when other factors such as the vitamins have been supplied In cases of phlyctenules, which occur most frequently in persons with the strumous diathesis those with poor living conditions and those with a faulty diet treatment with the ultraviolet rays has given good results when vitamins have been supplied in the form of cod liver oil and hypophosphites The exposure to the quartz lamp is at first ten minutes long and then gradually extended to an hour In thirty cases which have been under observation for a year the results have been gratifying

VIRGIL WESCOTT M D

**Adrogué, E Dendritic Degeneration of the Cornea** (Sobre la degeneración en malla o en rejilla de la córnea) *Rev soc argent de oftalmol* 19 5 1, 33

Fuchs classifies dendritic degeneration of the cornea as a dystrophic process of the cornea due to disturbance of nutrition It is differentiated from inflammation by the fact that it has no objective signs of inflammation its course is progressive while inflammation, after an acute period subsides, there is no infiltration of leucocytes, and only degenerative processes, such as fatty degeneration (arcus senilis), calcareous degeneration (ribbon shaped keratitis), or hyaline degeneration (Groenouw's keratitis) are found

Adrogué reports the case of a man 37 years of age who had had attacks of redness of the eye and photophobia lasting from ten to fifteen days and occurring two or three times a year for a period of ten years His chief complaint, however, was a progressive decrease of vision Lateral examination with ordinary illumination showed a diffuse opacity of the cornea The slit lamp revealed a network of white lines which were most abundant in the median zone between the edge of the cornea and its center The picture of this network was unusually clear

In all of the cases seen by the author there were recurrent attacks of keratitis characterized by photophobia which was generally intense ciliary and conjunctival injection the latter generally not very

intense, pain in the ciliary region extending to the region supplied by the ophthalmic branch of the trifacial nerve, and frontal and hemicranial headache Instillation of fluorescein showed a loss of epithelium in the form characteristic of geographic herpes These lesions and classical herpetic keratitis cannot be confused with any other superficial lesion of the epithelium of the cornea by one who has had experience with the slit lamp The lesion is bilateral

The author believes that dendritic keratitis and Groenouw's keratitis are the same condition and that they both follow attacks of herpetic keratitis

AUDREY G MORGAN M D

**Roethli A On the Question of Phaco Anaphylactic Endophthalmitis** *Arch Ophthalmol* 1926 10, 103

Roethli says that to prove the occurrence of phacoanaphylactic endophthalmitis in human pathology the following questions must be answered Can animals be sensitized to lens protein by injection into the eye? Is the rupture of the capsule in sensitized animals followed by local or general reactions? Can own lens protein of the animal injected into the eye or elsewhere cause hypersensitivity?

Krusius Roemer, and Gebb found that intracardiac or intraperitoneal re-injections of small quantities of different proteins including lens protein after primary injections into the vitreous caused anaphylactic shock

The results of experiments to determine whether rupture of the capsule in sensitized animals is followed by a local or general reaction have been contradictory Krusius found very slight anaphylactic reactions while Roemer and Gebb observed no general anaphylaxis De Waele sensitized rabbits to lens protein and performed a discussion two, three, five, eight, or twelve days later He found that the sooner the discussion was performed after the injection the stronger the reaction Verhooff and Le moine reported marked ocular reactions after discussion in four of seven guinea pigs which were sensitized with one subcutaneous injection of lens protein

In experiments to determine whether own lens protein of the animal injected in the eye or elsewhere can cause hypersensitivity Uhlenhuth and Handel and later, Mita succeeded in provoking anaphylactic shock in guinea pigs which were sensitized to their own lens protein Krusius observed slight anaphylactic symptoms in guinea pigs after the introduction of lens fragments from guinea pigs into their anterior chambers or the performance of discussion first on one eye and later on the other Roemer and Gebb were unable to obtain auto anaphylaxis in any way Experiments have shown that hypersensitivity to own lens protein can be produced only by giving several injections of large doses of homologous lens protein

A summary of the results of experiments on animals with homologous lens protein therefore shows that endophthalmitis phaco anaphylactica is not proved

In conclusion Ruskin emphasizes the importance of the role played by maxillary sinusitis in the production of nasal obstruction chronic laryngitis, and bronchitis in children

MIRHOFFER cites the fact that while it has been known for many years that nasal polyps are an extension of a primary disease in the antrum hyperplasia of the antrum without extension of polyps into the nose has not been recognized very often He describes a form of hyperplastic disease of the antrum in which there are few if any pathological changes in the nasal mucosa namely, primary hyperplastic maxillary sinusitis

Hyperplastic maxillary sinusitis is of the following four types

Antrum hyperplasia with extension of polyps into the nose combined with suppuration

Antrum hyperplasia with extension of numerous polyps or a solitary polyp into the nose but without a purulent discharge

Hyperplasia of the antrum without extension of polyps into the nose and with or without mild pathological changes in the nasal mucous membrane and the other sinuses (primary hyperplastic maxillary sinusitis)

Hyperplasia of the recesses of the antrum only (recess hyperplasia)

Following a discussion of the pathology and symptoms the author draws the following conclusions

1 Maxillary sinus hyperplasia was always found when an extensive nasal polypoid mass was present

2 Hyperplasia of the antrum may be present many years without causing symptoms referable to the antrum

3 The failure of the removal of pathological changes in the nose to give relief should direct attention to the antrum

4 Hyperplastic ethmoiditis of a mild type may be associated with gross hyperplastic changes in the maxillary sinuses

5 The roentgenogram will be found of aid in arriving at a conclusion as to the advisability of exploring the antrum

6 An exploratory opening is often the only means of determining the presence or absence of hyperplastic changes within the cavity of the antrum

7 Hyperplastic changes in the antrum are present more often than has been hitherto suspected

8 If the possibility of antrum hyperplasia were always borne in mind and the cavity investigated before the performance of an intranasal sinus operation the results of intranasal sinus surgery would be more satisfactory A R HOLLENDER M D

Klestadt W and Martenstein H Combined Operative and Irradiation Treatment of Cancer of the Nose and Accessory Sinuses (Die kombinierte operative und radiologische Behandlung der Nasen Nebenhöhlenkrebs) *Beitr z klin Chir* 1925 cccviii 626

The authors report upon fifty eight cases of malignancy of the nose and accessory sinuses seen during a

period of fifteen years Most of the patients were between 50 and 60 years of age In forty nine cases the neoplasm was a carcinoma and in nine a sarcoma More than half of the patients complained of coryza with nasal obstruction In 36 per cent polyps were found Nasal polyps and internal nasal cancers both follow chronic irritation of the nasal mucosa The antrum of Highmore and the anterior portion of the ethmoid bone always contain pus

The treatment requires (1) radical removal of the growth (2) simultaneous radical operation on all the diseased accessory sinuses (3) irradiation Internal cancer occurs most frequently in the upper part of the nose The refore the best incision for exposure of the operative area is the Weber incision for resection of the maxilla which is carried upward along the supra orbital margin along the lines of the Killian incision The facial wall of the antrum of Highmore, the lateral wall of the nose with the aperture the anterior wall of the sphenoidal sinus the orbital wall of the frontal sinus and the mucosa of all the accessory sinuses are removed and the tumor masses curetted with a sharp curette Of the hard palate which is essential for nutrition and speech no more is removed than is absolutely necessary The dura and the structures of the pterygopalatine fossa are critical sites The suture of the wound is confined to the eyebrow the ala nasi and the vestibule of the mouth in order to leave a portal of entry for the subsequent irradiation

Of the fifty eight cases thirty eight were subjected to irradiation treatment consisting of roentgen or radium irradiation alone and in combination Sixty four operations were done on these fifty eight patients with a total mortality of 7.8 per cent The dangers of the operation anaesthesia hemorrhage, and meningitis may be decreased by conduction anaesthesia of the second branch of the trigeminal nerve and the ethmoidal nerve injections around the blood vessels to secure anaemia, and good drainage of the wound secretions

Four of the patients may be considered as cured after freedom from recurrence for five years One patient had a local recurrence after three and one half years and another after five and one half years The majority (53 per cent) showed a recurrence within the first year Metastases are not often observed but when they occur they are found most frequently in the bones The advisability of removing the lymph nodes is difficult to decide because of the rarity of metastases and the fact that recurrences are usually local Since the glands serve as the recipients for the cancer cells mobilized during the operation it seems wise to operate on them only after a few days

With regard to irradiation treatment it is still undecided whether the administration of relatively small doses at intervals of several weeks over a long period of time or intensive irradiation is best However the failures of intensive irradiation according to the method of Wintz and the occasional serious roentgen injuries resulting from this method justify

irradiation in fractional doses. The authors have obtained the best results with doses of one third to two thirds of the skin unit dose given with the use of a filter of 3 or 4 mm. of aluminum. GRIESSMANN (Z)

**Quick, D.** The Use of Radium and the X Rays in the Treatment of Malignant Diseases of the Paranasal Sinuses. *Surg., Gynec. & Obst.* 1926, LII, 46

The proper application of radium and the X rays in the treatment of malignant diseases requires an accurate knowledge of the histological structure of the tumor, its size and shape, its relation to adjacent structures, and the presence or absence of infection.

The peculiar anatomy of the paranasal sinuses which favors inflammatory processes is an important factor in the causation of malignant growths in these structures. Inflammatory processes alter the normal type of tumor growth and influence unfavorably the protective cellular reactions in the surrounding normal tissues.

Quick believes that the complex embryology of the parts under discussion affords an opportunity for tumors to originate from numerous developmental anomalies, thus explaining the wide range of tumor types found.

The most common malignant growth occurring in the sinuses is carcinoma of the maxillary antrum. Squamous cell carcinoma usually represents a secondary invasion of the antrum, but may arise there primarily from lining membrane cells altered or flattened by a previous inflammatory process.

Certain basal cell tumors, round cell carcinomata of atypical structure, and sarcomata of various types also occur at different points in the paranasal sinuses. As a rule, such involvement is only a part of a more generalized disease.

When the cases are seen by the surgeon, the condition is almost invariably far advanced, having been considered inflammatory too long. Biopsy or earlier surgical exploration of the sinuses would result in the saving of many lives.

Radium and the X rays have proved of value in the treatment of malignant tumors of the paranasal sinuses. In the experience of Quick, a combination of surgery and irradiation with radium and the X rays gives the best results. The physical agents are depended upon to deal with the new growth directly, and surgery is used to provide access and drain age.

Treatment with the X rays alone is not sufficient to control the growth in the paranasal sinuses except, perhaps, in cases of such unstable tumors as lymphosarcoma. The X rays are employed for external radiation. For direct application to or into the growth radium is the agent of choice. The method depends upon the requirements of the particular case, but the irradiation must be applied accurately and uniformly throughout the tumor and in sufficient amount to produce a maximal reaction compatible with viability of the surrounding normal tissues.

For several years Quick and his associates have employed bare tubes of radium emanation very extensively. During the past year, they have found it possible to prepare gold emanation tubes scarcely larger than the bare tubes or glass emanation tubes. These have all the advantages of bare tubes minus the beta radiation. By means of them it is possible to bury filtered radium emanation, obtain a prolonged intense gamma radiation, and avoid the severe inflammatory reaction which always follows the use of the beta rays.

The technique of applying the tubes is described. The internal applications are almost always supplemented by external doses of the X rays or filtered radium or both.

With regard to the choice of method in removing the irradiated tumor tissue, Quick states that the use of the scalpel and curette is bloody and necessitates too much manipulation of the tissues. The old fashioned cautery and soldering irons are clumsy and produce too much heat. Coagulation of the entire area by means of the high frequency cautery, and removal with a curette or the high frequency cutting needle gives the desired result with minimal trauma.

Metastatic cervical nodes secondary to the various types of carcinoma encountered in the paranasal sinuses are treated in the same manner as metastatic nodes secondary to intra oral carcinoma, that is by a combination of the X rays, radium, and surgery.

Of 100 cases seen between 1916 and the present time, all but twenty eight were too far advanced for any treatment except palliative measures. In seven of the twenty eight operable cases the eye was removed and the antrum cleaned out from below. Of the total group of patients, fifty six are known to be dead, twenty two cannot be traced and are assumed to be dead, seven were treated too recently for the results to be known, and fifteen present no clinical evidence of any malignant disease processes after from nine months to eight years.

A. R. HOLLENDER, M. D.

## MOUTH

**Brockbank, E. M.** Dental Sepsis and Septicæmia. *Brit. M. J.* 1916, 1, 56

Illness secondary to focal dental infection may arise from root abscesses, from absorption of the alveolar process of the jaws with pyorrhea, and from tartar. In general there are two types of affections caused by dental sepsis—appyrexial conditions, such as myositis, fibrositis, neuritis, arthritis, phlebitis, anæmia, and myasthenia cordis, and pyrexial affections such as acute throat inflammation, arthritis, bronchopneumonia, and septicæmic conditions.

The author believes that in cases of obscure debilitating diseases an X ray examination of the teeth should be made and all diseased teeth should be extracted.

GEORGE R. McAULIFF, M. D.

# Quick D The Treatment of Carcinoma of the Tongue *Brit J Radiol* 1926 XXI 81

Epidermoid carcinoma of the tongue is one of the most difficult types of malignant disease to treat because of the muscularity of the tongue its rich blood and lymph supply and its mobility the age of the patient and the presence of mixed oral infection

As surgery has not been particularly encouraging even when an almost perfect technique has been used radium and the X rays have been employed in the hope of improving the results

For the primary lesion the author recommends preliminary external radiation with the X rays or radium packs to inhibit the growth of the lesion and prevent the implantation of tumor cells in normal tissue

Strict regard should be paid to oral hygiene Quick introduces into the lesion bare tubes 3 by 0.3 mm in size and containing 1 mc which give 132 mc hrs of radium energy in about a fortnight To prevent the irritative and painful destructive effects of the beta radiation he now employs gold capillary tubes The tubes produce a painful reaction for from four to eight weeks but their use is justified by the end results

If the patient is unable to withstand the radical treatment described milder forms of radiation are combined with surgery Only one cycle is given If this proves insufficient the prognosis is decidedly unfavorable If an extensive slough seems imminent the external carotid artery is ligated with the lingual and facial arteries under local anesthesia

Operative measures are advocated also for cancer developing on syphilitic glossitis

In the treatment of cervical lymph nodes the author prefers intensive preliminary radiation followed by surgery He subjects every case immediately to heavy external radiation over both sides of the neck preferably with radium or if this is economically impossible with the X ray If no evidence of invasion is noted a second radiation is given as soon as the skin will stand it As the X rays act especially on connective tissue and radium acts especially on capillary blood vessels the combination of the two produces a more uniform and generalized reaction than either alone When a node is firm but movable a radium pack is added a complete unilateral surgical dissection is done and bare tubes are buried especially where lymph channels have been severed If the node is fixed surgical dissection is rarely done as the capsule has been perforated Under such circumstances it is wiser to use external radiation alone or to follow with surgical exposure and direct implantation of bare tubes

Of 414 patients treated by the author slightly over 20 per cent were rendered clinically free from the disease and a considerable number were relieved even though their lives were not saved In these cases which were unselected the percentage of clinical cures was approximately the same as that obtained by surgery in selected cases Quick regards

the X rays and radium as valuable additions to surgery rather than as substitutes for it

GEORGE R McALLIFF MD

## NECK

### Jura V Haemorrhagic Cysts of the Neck (*Clinematica del collo*) *Polislin Rome* 1923 XXXII sez chir 501

Jura reports the case of a 20 year-old woman who thirteen days after her first delivery about two years and a half ago noticed a swelling about the size of a walnut in the lower part of the left lateral cervical region near the supraclavicular fossa This growth was soft and elastic and covered with normal skin It did not pulsate It increased slowly and progressively in size but did not cause any pain or other symptoms By the end of a year it had reached the size of a small egg It was then punctured twice about a liter of dark blood being evacuated Two months later the swelling had regained its former size

During the patient's second pregnancy the tumor did not change much in size but after delivery it grew again and there was a pulling pain in the left shoulder on use of the arm Under novocain anesthesia an incision was made parallel with the posterior border of the sternocleidomastoid The cyst which lay between this muscle and the trapezius was easily isolated and removed It was not connected with the internal jugular The transversalis colli artery which was attached to its posterior surface was sectioned

Histological examination of the cyst wall showed that it had the structure of a vein wall which had been changed by endophlebitis causing considerable thickening of the intima The cyst was evidently a hemorrhagic cyst due to phlebectasia of the transversalis colli Jura suggests that the weakness of the vein appearing subsequent to the pregnancy may have been congenital

Haemorrhagic cysts of the neck are generally located in the lateral cervical supraclavicular, carotid submaxillary or subhyoid region between the median and deep cervical aponeuroses They never show true expansive pulsation but if they are connected with an artery pulsation may be transmitted to them

They very rarely cause pain They are differentiated from solid tumors by their consistency from aneurism by their lack of pulsation from cavernous angioma by their lack of erectileity and from soft tumors and other forms of cysts by the findings of exploratory puncture

The treatment is radical removal of the cyst after ligation of the vessel on which it is implanted In some cases it may be necessary to remove a section of the vein Adhesions may be present but often a plane of cleavage may be found Methods of bringing about coagulation by chemical agents are dangerous as they may cause embolism

AUDREY G MORGAN MD

**Harburger, A.** An Anatomical Clinical and Roentgenological Study of the Normal and Abnormal Hyoid Apparatus in Man (*Étude anatomique clinique et radiologique de l'appareil hyoïdien normal et anormal chez l'homme*) *Arch internat de laryngol* 1923, xxxi 033 1047

The hyoid apparatus is formed by fusion of the second and third branchial arches and consists of a ligament stretched between two bone processes. In the newborn infant it is made up of a short styloid process still containing in its axis a remnant of Reichert's cartilage, the stylohyoid ligament two or three times the length of the process which does not have any cartilaginous inclusion, and the lesser cornua of the hyoid bone.

The abnormal form consists of a chain of two three or four bones connected by short ligaments or bony articulations. This form is more common than is generally supposed.

The piece on which the styloid muscles are inserted should be called the 'stylohyal segment' whatever the length and mobility of the piece which articulates with the temporal bone. The insertion of the stylomaxillary ligament is less constant.

The anomalous hyoid structure was formerly found chiefly in old subjects because it was discovered by chance at autopsy but clinical and roentgenological examinations reveal it in young persons. The long styloid process without a trace of articulation which is sometimes found in old persons is different from the hyoid apparatus with segments differentiated and articulated. The anomaly is unilateral in the majority of cases and when it is bilateral is rarely symmetrical. It is best explained by heteromorphosis alone or in combination with arrest of development.

As a rule the anomalous hyoid apparatus remains clinically latent. When it does become manifest the chief symptom is painful dysphagia. In the diagnosis palpation of the pharynx is indispensable and should always be practiced before any operation is performed on the tonsils. Roentgen examination is also necessary as it is the only method of discovering the condition when it is latent. The picture should be taken in profile with the head extended and the ray centered on the angle of the jaw. One picture should be taken on the right side and another on the left. The most frequent error in diagnosis is confusion of the condition with a cartilaginous nodule or a calculus in the tonsil but in the latter case the hard tissue is found within instead of outside the tonsil and is movable with and enucleated with, the tonsil.

Resection of the styloid process always brings about recovery. In spite of the septic condition of the mouth and the great susceptibility of the peripharyngeal tissue the natural route seems to be best for the operation. **AUDREY G. MORGAN, M.D.**

**Arnell, J. R.** The Great Importance of the Thyroid in Relation to Certain Varieties of Heart Disease. *Colorado Med* 1926 xviii 111

Arnell emphasizes the importance of early diagnosis and treatment of thyroid disease to prevent

the serious cardiovascular complications resulting from abnormal thyroid activity. Every examination should include a careful inspection and palpation of the neck and when possible, this should be supplemented by a fluoroscopic examination of the chest to determine the presence or absence of a substernal thyroid.

In this discussion the author deals chiefly with adenomata. He states that in a certain percentage of cases there is a definite association between colloid goiter i.e. simple goiter and the subsequent development of adenomata of the thyroid. There are no innocent adenomata sooner or later such tumors become toxic, and if they are not properly treated surgically, serious cardiovascular and nervous diseases result.

The importance of small adenomata of the thyroid as causes of serious cardiovascular disease is emphasized. These tumors are often so small that they escape the attention of the examiner while the cardiovascular symptoms are so overpowering that the treatment is directed toward a failing heart, the true cause being overlooked. In the treatment, operative interference is the method of choice. If the patient refuses operation or is an extremely poor risk, the X rays or radium should be used.

**ARTHUR L. SKEFFLER, M.D.**

**Castex, R. and Scheingart, M.** Cholesterinaemia and Calcemia in Thyroid Conditions. Their Relation to the Basal Metabolism (*La colestérinémie y la calcemia en los estados tiroideos sus relaciones con el metabolismo basal*) *Arch argent de enferm d apar digest* 1951 21

The authors report their study of the relation between thyroid function and the metabolism of cholesterol and calcium as shown by the content of cholesterol and calcium in the blood in cases in which a diagnosis of hypothyroidism or hyperthyroidism was made on the basis of the basal metabolism.

The findings of these investigations demonstrate that the internal secretion of the thyroid does not influence the cholesterol content of the blood in the slightest. The authors therefore conclude that the hypocholesterinaemia and hypercholesterinaemia observed in patients with thyroid disturbances depend, not upon the thyroid condition but upon some other condition possibly the influence of the thyroid on the adrenals.

As the calcium content of the blood also was found to be uninfluenced by thyroid dysfunction, the authors conclude that the changes in the quantity of calcium in the blood in thyroid disease may depend upon some factor related to the vagosympathetic system. **JOHN W. BRENNAN, M.D.**

**Simpson, W. M.** Three Cases of Thyroid Metastasis to Bones. With a Discussion as to the Existence of the So called 'Benign Metastasizing Goiter.' *Surg Gynec & Obst* 1966 xli 489

From a study of case reports Simpson concludes that the observation of supposed metastases of non-

mal thyroid tissue made by Cohnheim and by Morris have been widely quoted and have influenced many others to report similar cases. Cohnheim's report of a case of simple colloid goiter with metastasis contains abundant evidence of primary carcinoma of the thyroid gland. In the case reported by Morris there was no histological or other examination of the thyroid gland.

In most of the collected cases the diagnosis of benign metastasizing goiter was based upon the clinically benign appearance of the goiter and the benign microscopic appearance of extirpated metastases.

Metastases of thyroid carcinomata vary greatly in their microscopic appearance and may assume the structure of normal thyroid tissue, benign thyroid adenomata or simple colloid goiter. Such secondary growths may function in the same manner as normal thyroid tissue.

A microscopic examination of the thyroid gland was made in only twenty nine of seventy seven similar cases collected from the literature and in many of the reports areas of undoubted carcinoma were described. Autopsy was done in only 33 per cent of the reported cases.

The belief of some surgeons that these distant metastases represent aberrant thyroid tissue has no basis in fact.

The metastases in cases of so called benign metastasizing goiters show the same striking predilection for bone that characterizes secondary growths of thyroid origin which show a frank carcinomatous structure. The vertebral bodies and the cranial bones are most frequently involved. Pathological fractures of the humerus and femur are common. The osseous metastases frequently show fluctuations in size during menstruation and pregnancy. Pulsation is a common finding.

Most of the thyroid metastases to bone were diagnosed clinically and roentgenographically as primary sarcomata. Metastatic new growth of thyroid, prostate, breast, adrenal or renal origin should be considered in cases of skeletal new growth.

The reports of most cases of benign metastasizing goiter were published soon after the discovery of the metastases with a benign microscopic appearance and before the outcome of the condition was known.

Two cases from the University of Michigan hospital showed osseous metastases of microscopically benign tissue associated with clinically negative goiters. One was reported soon after operation as an instance of metastasis of normal fetal thyroid tissue. Both patients subsequently showed clinical evidence of undoubted carcinoma of the thyroid gland and died after eighteen months and two years respectively.

Many cases are recorded in which the microscopic examination of tissue from the metastasis revealed normal thyroid structure while histological study of tissue from the thyroid gland showed undoubted areas of carcinoma.

Abundant evidence indicates that there is no such entity as 'benign metastasizing goiter'. The use of the term should therefore be abandoned.

JAMES C BRASWELL M D

**Blum F. Studies on the Parathyroid Glands. Their Secretion, Their Importance for the Organism and the Possibility of Substituting for Them** (Studien ueber die Epithelkoerperchen ihr Sekret ihre Bedeutung fuer den Organismus die Moeglichkeit ihres Ersatzes) 1925 Jena Fischer.

This monograph is the report of a series of investigations made on several hundreds of animals during a period of more than ten years.

The parathyroid glands secrete a hormone internally which becomes activated into the complete hormone only outside the gland and then circulates in the blood plasma. The blood cells are free from hormones. During lactation the parathyroid hormone passes into the milk.

Through their hormone the parathyroid glands exert a definite influence on a large number of organs acting as a protective mechanism against a constantly threatening auto intoxication. When their protective influence over the central nervous system is deficient tetany and occasionally hallucinations occur. In the bone and tooth structures parathyroid deficiency is evidenced by retardation of growth and malformations in the blood by a marked decrease in the calcium content of the serum and in the external eye by inflammatory and trophic degenerative disturbances. When the kidney is insufficiently protected there is an increase in the residual nitrogen. The parathyroid hormone protects also the hematopoietic apparatus, the thyroid gland and other organs.

All of the organs so protected are injured when the integrity of the parathyroid glands is destroyed but if the body continues to be supplied by the hormone from a remnant of the parathyroid glands or by protective feeding (milk or blood) repletion occurs in the endangered organs according to their power to attract the protective bodies, a power which depends upon their susceptibility to intoxication.

In mature animals reserve substitution products are mobilized in the body when the parathyroid hormone is decreased but in immature animals this does not occur. In the young therefore any decrease in the function of the parathyroid glands causes marked weakening. During nursing the mother provides the supply of hormone for the child from the protective substances in her milk.

These findings provide a new point of view with regard to the nature and treatment of certain diseases. STRAHL (Z)

**Iglauer S. The Treatment of Chronic Laryngo-tracheal Stenosis.** *Ohio State W J* 1926 xxi 218.

Iglauer is of the opinion that stenosis of the larynx is usually secondary to ulcerative processes within the larynx. In adults paralysis of the recurrent laryngeal nerves and ankylosis of the arytenoid

cartilages are other causes. The nature and extent of the stenosed area can be determined by direct and X-ray examination.

As chronic cannula carriers are more comfortable if they wear a valvular speaking cannula, Iglaue has made a cannula that opens on inspiration and closes on expiration. Obstructive lesions should be removed and prolonged treatment with metal or rubber dilators should be given. The prognosis for ultimate functional recovery is favorable.

JAMES C. BRASWELL M.D.

**Ferreri G. Cancer of the Larynx in Woman** (Le cancer du larynx chez la femme) *Arch. internat. de laryngol.*, 1925 **XXI**, 897.

Cancer of the larynx occurs about six times as often in men as in women. Formerly many brilliant results from operation were reported because an erroneous diagnosis of cancer was made in cases of syphilitic gummata, tuberculous vegetations, pachydermia of the larynx, and benign new growths. The difference in the incidence of cancer in the larynx in the two sexes disproves the theories of contagiousness and heredity of malignant tumors. There is nothing but hypothesis to explain it. As the majority of laryngeal cancers occur in syphilitics, the most probable theory is that syphilitic lesions in men are exposed to irritation by alcohol, smoke, misuse of the voice, dust, and irritating vapors more frequently than those in women.

The age incidence of laryngeal cancer is about the same in men and women. Forty-five per cent of the subjects are between 50 and 60 years of age and 23.4 per cent between 40 and 50 years, but the condition has been found as early as the twentieth year.

The diagnosis should always be made by examination of a piece excised from the tumor since roentgen

treatment seems to have no effect on spinocellular cancer but is effective on the basal cell form. Most of the cancers of the larynx observed in women are extrinsic rather than intrinsic.

In intrinsic cancer, laryngofissure is the method of choice but if the epithelioma has passed beyond the vocal cord and affected the arytenoid cartilages or the crico-arytenoid articulation or has crossed the anterior commissure and invaded the other side, total extirpation of the larynx is indicated. The author disapproves of hemilaryngectomy because it is associated with the danger of local recurrence and leaves the tissues in a condition of permanent irritation due to the presence of a fistula.

In extrinsic cancer the treatment of choice is radium irradiation preceded by tracheotomy to prevent suffocation. The radium should be applied directly to the lesion by the natural route if possible or through an operative fistula (hyothyrotomy). The author cites Sargnon's case of retro-crico-arytenoid spinocellular epithelioma in a woman of 72 years of age. Fifty milligrams of radium were applied in a rubber container for six hours and then, after tracheotomy, thyrotomy and section of the epiglottis were performed. The patient was alive two years after the operation.

He reports also three cases of his own. One of his patients died of an inoperable cancer of the larynx and one recovered after total laryngectomy. The third recovered after tracheotomy followed by radium treatment but has been treated too recently for the final results to be known.

Ferreri regards roentgen treatment as more dangerous than radium treatment because it breaks down the tissues. The absorption of toxins from disintegrated tissue is more harmful to women than to men.

AUDREY G. MORGAN M.D.



# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Harris W and Newcomb W D A Case of Pontine Glioma with Special Reference to the Laths of Gustatory Sensation *Proc Roy Soc Med Lond* 1926 XIX Sect Neurol 1

The patient whose case is reported was a 14 year old boy whom Harris considered from the point of view of intellectual ability an excellent subject for careful gustatory examinations At the time of his admission to the hospital he presented a typical pontine syndrome with paralysis of the body and extremities on the right side and of the face on the left side The clinical picture suggested that the lesion was very extensive there being complete right hemi-anesthesia hypoglossal paralysis right fifth nerve anesthesia but no paralysis of the motor branch of this nerve and partial fifth nerve hypaesthesia to light touch on the left side

The patient died about two months after his admission to the hospital following a continuously downward course

Pathologically examination made by Newcomb revealed a tumor growth extending in the left side from the pons to the red nucleus and down to the lower border of the olive with a slight extension across the midline

The authors were interested especially in the disturbance of taste which was complete both in the front and back of the tongue on the right side but on the left side was apparent only on the front of the tongue

In Harris opinion this gustatory disturbance is explained by Nagotte's theory that the gustatory nucleus receive fibers from the fifth nerve and pars intermedia as well as the glossopharyngeal and by the hypothesis that the function of the fifth nerve in the phenomenon of taste is the maintenance of common sensation while the nerve of Wrisberg functions in a more specific capacity the two together combining to produce the sensation of taste

LEO M DAVIDOFF MD

Timme W The Glandular Treatment of Pituitary Tumors and Hyperplasias *Atlantic M J* 1926 XXIV 427

Cranf F C The Results in X Ray Treatment of Early Pituitary Lesions *Atlantic M J* 1926 XXIV 410

Frazier C II The Surgical Management of Pituitary Lesions *Atlantic M J* 1926 XXIV 435

TIMME distinguishes between simple hyperplasias of the pituitary and true pituitary neoplasms which he believes can be done by studying the history of the case For the former he advises whole gland

treatment given in combination with hypodermic injections of pituitrin other glandular extracts iodides, etc depending upon the case

CRANF advocates the use of the X rays and radium in cases of primary tumors of the pituitary gland in which surgical scler decompression is not indicated immediately to save vision and also as postoperative treatment in cases treated surgically He cites seven cases with improvement of headache the visual fields and the general health following such treatment

FRAZIER describes his technique for the transphenoidal approach to the pituitary and advises operative interference in cases in which a pituitary adenoma has reached a size sufficient to affect vision He outlines a very careful pre operative and post operative routine

LEO M DAVIDOFF MD

## SPINAL CORD AND ITS COVERINGS

Bréchet Idopathic Incontinence of Urine and Laminectomy (Incontinence essentielle d'urine et laminectomie) *Bull et mém Soc nat de chir* 1925 LI 896

Bréchet has performed six laminectomies for idiopathic incontinence of urine and one for bilateral hollow foot One of the patients with incontinence had also a hollow foot and a permanent flexion contracture of the great toe In none of the cases was there a family history of congenital malformation or nervous disease The patients were all of normal intelligence The roentgen picture showed the lumbosacral region normal in only one case In the others there was a median fissure of the fifth lumbar or first sacral vertebra and in two cases the laminae did not meet on the same level and were superimposed at the ends In another case the laminae were not as long as normal and the vertebral canal was therefore slightly smaller than normal These were cases of false spina bifida occulta

The technique of laminectomy was simple the operation consisting in a median incision dissection of the lumbosacral muscles and resection of the spinous processes and laminae of the first sacral or fifth lumbar vertebra or both This is much simpler than the laminectomy recommended by Delbet for adults which Bréchet does not think should be practiced on young children

The child with a hollow foot and contracture of the great toe was completely cured He has not urinated in bed once since the operation his foot is normal and the contracture of the toe has disappeared The child with a double hollow foot was also greatly benefited The others were benefited but none of them was cured completely

A certain amount of caution is necessary in judging the indications for operation in these cases since

in some of them recovery occurs spontaneously as the subject grows older, and up to the age of 10 to 12 years the roentgen picture of spina bida occulta is not absolutely reliable.

In the discussion of this report OMBREDANNE said that he did not regard the difference in the level of the laminae as of much significance but believed that chief importance was to be ascribed to the fact that as the posterior vertebral arches were shorter than normal they did not form the usual curve but approached each other by the shortest route and were connected with each other by a fibrous layer this resulting in a flattening of the spinal canal in its anteroposterior diameter. He doubts the wisdom of operating for incontinence of urine but has operated for pain incontinence of faeces and club-foot with good results.

BRECHOT replied that Ombredanne was considering cases of more pronounced spina bida occulta than his. Brechot found the spinous processes normal in his cases and the fibrous thickening he discovered was in the dural sac there was no fibrous membrane connecting the laminae. Brechot does not advocate routine operation for incontinence of urine but thinks that when the roentgen picture shows malformation of the neural arch or fissure laminectomy is justifiable. AUDREY G. MORGAN, M.D.

### SYMPATHETIC NERVES

BONANI, G. Late Results of Perifemoral Sympathectomy in the Treatment of Varicose Ulcer (Risultati lontani della simpatectomia perifemorale nel trattamento dell'ulcera varicosa) *Chir. d'or.* *gar di morimer* 9 1935, 369.

Bonani reports seven cases of periarthral sympathectomy for varicose ulcer in all of which the lesion had persisted for from seven to twenty years and had resisted the usual treatments. The Wassermann reaction was negative. In every instance roentgenograms of the leg showed the bone lesions which have been described as characteristic of severe cases.

The operative technique was that recommended by Leriche. The artery was exposed in the middle third of the thigh beginning at the apex of Scarpa's triangle where the collaterals are few. The technique is difficult and in old patients with atheroma of the arteries and periarthral great care is necessary. Considerable time is required to ligate the small collaterals. After the exposure of the artery it is not difficult to strip the adventitia for a distance of from 10 to 12 cm.

In all of the author's cases healing occurred by first intention. In no instance was there any secondary hemorrhage. The immediate results were very good. Complete cicatrization of the ulcers occurred in four cases and partial cicatrization in two. In one case the treatment had no effect.

Re-examination of the patients a year and a half after the operation showed that the complete cicatrization which occurred in four cases was permanent.

in only one in the others the ulcers recurred after fifteen days, three months and five months respectively. The result was temporary also in both of the cases of partial cicatrization. Because of these findings and the relative difficulty and danger of the operation Bonani concludes that the indications for perifemoral sympathectomy for varicose ulcer are very limited. AUDREY G. MORGAN, M.D.

COMAN, F. D. Observations on the Relation of the Sympathetic Nervous System to Skeletal Muscle Tonus. *Bull. Johns Hopk. ns Hosp. Balt.* 1926 XXXVIII, 163.

In summarizing the literature on the relation of the sympathetic nervous system to skeletal muscle tonus Coman states that stimulation of the sympathetic fibers to skeletal muscle has yielded only equivocal and unconfirmed results. Most observers find that elimination of the sympathetic fibers with preservation of the cerebro-spinal innervation of skeletal muscle has no effect on the muscle tonus and there is general agreement that definitive loss of tone follows interference with the cerebro-spinal reflex arc.

In the cat and dog the somatic nerve supply of the foreleg in relation to the thoracolumbar sympathetic outflow offers a unique anatomical basis for the elimination of one type of innervation without disturbance of the other. The first ramus communicans albus leaves the cord with the first thoracic root and the last of the thoracolumbar outflow leaves the cord with the third or fourth lumbar root. The secretory and vasomotor fibers for the forelimb leave from the fourth to ninth spinal roots inclusive (rarely from the third) the maximal effect being produced by stimulation of the seventh. Stimulation or section of white rami higher than the fourth thoracic causes only secretory or smooth muscle changes in the head (particularly in the eye). Hence the ventral roots of the entire brachial plexus including the first or second thoracic may be sectioned without interfering with the sympathetic innervation to the forelimb whereas section of the third to the tenth thoracic roots eliminates the sympathetic innervation of the foreleg without disturbing the somatic innervation.

From experiments on thirty nine cats and seven dogs Coman draws the following conclusions:

1. Stimulation of the sympathetic innervation to the foreleg fails to cause any tonic reaction.
2. Complete removal of the sympathetic to the foreleg does not influence the normal development of tone either before or after decerebration.
3. Complete removal of the somatic motor supply to the foreleg is followed by total abolition of tone both before and after decerebration.

Since none of the conditions essential for proof of the sympathetic innervation of skeletal muscle could be observed the conclusion is drawn that there is no relation between the sympathetic nervous system and the development or maintenance of postural tone in the cross-striated muscle.

The author states that his experimental results seem in accord with Sherrington's concept of skeletal muscle tonus as simply a postural reflex under cerebrosplinal control. None of the findings indicates the necessity of a distinction of elements in tonus such as the contractile and plastic elements postulated by Langelaan and there is no support to the theory of a dual innervation by sympathetic and somatic nerve elements. **WALTER C BURKET M.D.**

**Bransburg.** *The Histopathological Changes in the Heart Muscle Following Sympathectomy* (Die pathologisch histologischen Veränderungen des Herzmuskels nach Sympathektomie) *Russkaja klin* 1925 iv 221

The effect upon the heart of a sympathectomy which cuts off the entire innervating cardiac plexus has not been reported in the literature. The author attempted to solve the problem experimentally by experiments on twenty dogs and twelve rabbits. Unilateral or bilateral sympathectomy was done and the heart muscle examined at periods ranging from one to one hundred and twenty days. The following conclusions are drawn:

1 Unilateral and bilateral cervical sympathectomy in rabbits and vagosympathectomy in dog produce the following changes in the first few days following the operation: dilatation of the blood vessels, hyperemia, edema, intramuscular round cell infiltration and an initial stage of muscle striation followed by its disappearance. These changes indicate a disturbance of the circulation and muscle nutrition and parenchymatous degeneration.

2 For a longer time—up to the fourth post-operative month—the degenerative changes in the cardiac muscle become more pronounced. The granulation, the absence of cross striations and the longitudinal fibrillation indicate profound nutritional disturbances and degeneration of the muscle elements. At this stage hyperemia and edema are no longer present.

3 After unilateral sympathectomy in the rabbit and vagosympathectomy in the dog the degenerative muscle changes in the heart are localized according to the innervation. After operations on the left side the muscle changes occur in the neighborhood of the plexæ nervinæ whereas after operations on the right side they occur in the region of the first, second and third plexuses and after bilateral operations degenerative phenomena are observed everywhere.

4 Resection of the depressor nerve on the left side in rabbits and dogs causes insignificant changes in the wall of the aorta and in the muscle in the region of the first and second plexuses (areas supplied by the branch of the depressor nerve). No muscle changes are observed in other parts of the heart.

5 The results obtained from investigations following sympathectomy in animals indicate the trophic importance of the cardiac branch of the sympathetic, the necessity of interpreting the indications for sympathectomy in man with greater care and the fact that resection of the depressor nerve has apparently the same therapeutic and operative effect as sympathectomy. **LESSER (2)**

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Ginsburg S Pain in Cancer of the Breast Its Clinical Significance with Special Reference to Bone Metastases *Am J M Sc* 1926 clxxi 320

Pain is rare during the early stages of mammary cancer. Its presence is usually an indication that the carcinoma has undergone secondary degeneration with reactive inflammatory changes. Deep pain and radiating pain usually indicate extension of the disease. Skeletal metastases cause pain of wide spread distribution.

The incidence of skeletal invasion in sixty seven cases of breast cancer admitted to the Cancer Division of the Montefiore Hospital, New York City was 74 per cent.

In the early stages of skeletal metastasis the pain may be mild and inconstant with a tendency toward remission and periodicity which particularly in the absence of recurrent breast symptoms, may be deceptive to those unfamiliar with this type of invasion.

Recovery of function in cases of skeletal metastasis may be due to subsidence of the inflammatory reaction and is only temporary. The diagnosis is made by frequent physical and roentgen ray examinations.

The author believes that in advanced cases of cancer of the breast, radiotherapy is more effective than other methods of treatment and suggests as a prophylactic measure, postoperative radiation not only of the breast but also of the skeletal regions which are most frequently invaded.

WILLIAM E SHACKLETON M D

Richards G E X Rays and Radium in the Management of Breast Carcinoma *Canadian M Ass J* 19 6 xvi, 358

There is a great deal of evidence to support the theory that the X ray kills cancer cells directly. The cells of the basal cell epithelioma or lymphosarcoma are usually easily influenced. As the epithelial cell approaches the squamous type it becomes more resistant. A squamous cell epithelioma requires several times the dosage required by a basal cell tumor. In tumors with the cylindrical form of cell the margin of safety between the dose necessary to destroy the cancer and that which will destroy the normal tissue is reduced almost to the vanishing point.

Recent experimental work indicates that some, if not most of the effects produced by the X rays are due not to the direct destructive action of the rays upon the cancer cells but to an indirect effect produced in the normal body cells. It appears that this is somewhat analogous to an immunity effect.

In experiments on mice erythema doses of rays were applied to one groin and cancer grafts then implanted in both the rayed and the unrayed groin. A tumor resulted from five of six of the inoculations in the protected area but from only one of the six made in the irradiated area.

Heavy destructive doses of the rays produce fibrosis of the lung and destroy normal cells or lower their resistance. A minimum erythema stimulates normal tissue to resist the cancer cell.

The X rays may be made to cover adequately a much larger area than the quantities of radium which are usually available to the average physician and should be used in the majority of cases for both efficiency and economy.

In all prophylactic treatment the limit of voltage used upon the chest wall or the lung should be 140 kv and over the axilla and supraclavicular areas, 210 kv.

In practically all cases in which radium is employed postoperatively the author uses the X rays also. He finds that three quarters of a full dose of both radium and the X rays can be administered simultaneously.

Radium is of value chiefly in the treatment of accessible nodules in which an intense effect is desired. In the pre operative treatment of single or multiple small nodules it may be used with the X rays in the form of surface applications or packs or buried platinum needles of low potency and high filtration. In postoperative cases small skin nodules may be treated by surface applications, plaques, packs, or platinum needles on wax moulds. Nodules in the axilla may be treated with needles or packs. For supraclavicular nodules the use of packs in conjunction with the X rays is indicated.

HOWARD A MCKNIGHT M D

## TRACHEA, LUNGS, AND PLEURA

Forester J Roentgenological Exploration of the Bronchial Tubes with Iodized Oil (Lipiodol) *Radiology* 19 6 vi 303

After having proved the harmlessness of lipiodol injected into the bronchial tubes of animals, the author in conjunction with Leroux, used it in clinical cases and succeeded in outlining the bronchial tree in roentgenograms to the smallest ramifications. A part of the oil is expectorated soon after its injection but most of it is absorbed gradually and eliminated in the course of several weeks.

Lipiodol may be introduced into the bronchi by transglottic injection with the aid of a long curved catheter by the subglottic method which requires puncture of the intercricothyroid membrane or through the bronchoscope or laryngoscope.

Before its injection intratracheal anesthesia is induced with novocain solution. From 20 to 40 c cm of the oil warmed to body temperature, is then allowed to gravitate into the part of the lung under investigation the patient being placed in such a position that the part to be studied is as low as possible. Rapid exposures made in different positions or stereoscopically immediately after the injection record the localization of the oil and any pathological changes present. No more than one or two lobes of the lung should be explored at one time. The indications for the method are the following:

- 1 Cases in which a deviation, stricture or other abnormality of the trachea is suspected
- 2 Cases with a long history of pulmonary disturbance and chronic expectoration in which the diagnosis between phthisis and bronchiectasis is difficult
- 3 Cases in which the presence of a cavity in communication with the bronchi is indicated by roentgen
- 4 Cases of thoracic fistule of unknown origin
- 5 Cases in which clinical, laboratory and ordinary x-ray examinations do not lead to a certain diagnosis

The method gives valuable information by outlining the trachea and bronchi showing obstructions from pressure due to intrathoracic tumors and localizing cavities in communication with the bronchial tubes but its greatest value lies in the diagnosis of bronchiectasis. Whether this condition is of the cylindrical or acicular variety it is easily demonstrated.

After therapeutic pneumothorax exploration with lipiodol may show whether an adherent part contains lung or is merely membrane. It serves also to control the amount of lung collapse.

In more than 100 injections no severe accident has occurred. The method is contra indicated however in the cases of febrile tuberculous patients and after hæmoptysis its use should be delayed for several days. In cases of pulmonary gangrene and anaerobic infection subglottic injection of iodized oil is inadvisable.

Though the procedure has been employed mainly as a diagnostic aid it has been followed occasionally by marked improvement in the clinical course of cases of bronchiectasis and lung cavities. In some instances the profuse expectoration has been decreased for months.

ADOLPH HARTUNG M.D.

Møller P F and Von Magnus R. *Investigations of Bronchial Affections by Means of Iodine Preparations Jodumbrin and Lipiodol*. *Acta med Scand* 1925 111: 174

The authors have injected iodized oil into the bronchi in twenty three cases. Distinct roentgenograms were obtained but in not all of the cases were the bronchi filled. Lipiodol Lafay a thick yellowish oil with an iodine content of 0.54 gm per cubic centimeter has no local irritating effect and is absorbed in such slight amounts that it produces only a very

mild iodism. In most cases the authors used jodumbrin which is as pure and as well tolerated as lipiodol more fluid easier to inject, and produces a better shadow.

In the cases of patients with a tendency to cough a teaspoonful of a  $\frac{1}{3}$  per cent solution of syrupus codeini fortior is given one half hour before the injection. Local anesthesia is induced by swabbing the pharynx and larynx three times at intervals of five minutes with a 20 per cent solution of cocaine containing a few drops of 1:1000 adrenalin and syringing the larynx and the upper tracheal mucous membrane with  $\frac{1}{2}$  c cm of this solution. For the oil injection a 5 c cm laryngeal syringe with a cannula attached is used. The cannula is 15 cm long and has a caliber of 2 mm.

The cannula guided by the laryngoscope is introduced through the rima glottidis and the oil heated to 37 degrees C is slowly injected along the anterior tracheal wall. The patient breathes deeply and quietly and insofar as possible the injection is made during inspiration. The quantity estimated as necessary to fill one lung is between 5 and 30 c cm. The injections usually require from three to five minutes.

The iodized oil flows readily in the bronchi probably because of the heat of the body. During and immediately after the injection the oil is guided to the part of the lung to be studied by placing the patient in the proper position. When the patient coughs or retches the oil tends to escape into the esophagus and stomach.

The lung bases are injected with the patient seated and leaning toward the side of the lung to be examined. For the middle and upper lobes the injection is made with the patient sitting on a couch the foot of which is elevated. Immediately after the injection he is placed on the affected side head downward. Rolling the patient forward and backward on the involved side helps to fill the bronchi.

Immediately after the injection a transitory tracheal rale is audible and coughing is apt to occur. The patient is urged to suppress coughing. A few deep breaths will usually overcome the irritation. The next injection may then be given. No dyspnea or other disturbance of importance has been noted.

The day after the injection expectoration is often considerably increased but in a few days the sputum usually falls below the previous quantity. The first trace of iodine appears in the urine after about 12 hours. The excretion reaches its maximum in twenty-four hours and then gradually falls and after six days disappears.

In the cases reported there were no unfavorable secondary reactions with the exception of a fever of 38 degrees C in one case and coryza and headache in another. If the cannula used for the injection is too short the oil is apt to enter the esophagus.

Injection of the oil by puncture of the cricoid membrane is associated with danger as it has been known to cause the formation of a hematoma on the posterior tracheal wall perilaryngeal edema and detachment of the tracheal mucous membrane.

The use of a bronchoscope in one case was of no special value and caused discomfort.

The roentgenogram should be made as soon as possible after the injection of the oil. After from twenty to thirty minutes the picture of the bronchial tree becomes blurred as the result of ejection by coughing and absorption.

The method described is of value to obtain information with regard to anatomical variations in the bronchi, certain pathological changes in the bronchi and lungs which are not shown by ordinary roentgenograms, dilatation of the bronchi and alveoli, fistulae with possibly a bronchial connection, the location of the cavities, and the extent of the infiltrations.

The authors have seen beneficial effects from iodized oil in a case in which the results of routine iodine therapy over a long period of time were unsatisfactory. Iodine can be given in considerably larger doses in oil without risk of unfavorable secondary reactions.

Pleural injections of doses as small as from 1 to 2 c cm. in cases of pleurisy caused long continued rises in the temperature.

WALTER C. BURKET, M.D.

Packard G. B., Jr. Empyema in Children. *Colorado Med.* 1926, VIII, 88.

With regard to the treatment of empyema in children, the only surgical measure indicated during pneumonia is the aspiration of fluid to relieve pressure on the heart and opposite lung. The anæsthesia of choice is local anæsthesia, but nitrous oxide-oxygen anæsthesia induced by an expert is very satisfactory. Ether is to be avoided.

The closed method of treatment was used in twenty-five cases, the time of drainage averaging twenty-seven days, and the open method (rib resection) in five cases, the time averaging fifty-four days. The closed method has many advantages when careful after care can be given. The after treatment consists in irrigation of the empyema cavity with Dakin's solution twice daily and regular aspirations of the accumulated secretions at intervals of two or three hours with repeated injections of Dakin's solution.

There was only one death. Of the complications, otitis media was the most common and acute nephritis the next most common. There was one case each of myositis, endocarditis, erysipelas, chicken pox, meningitis, and subphrenic abscess.

RALPH B. BETTMAN, M.D.

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Koontz A R Muscle and Fascia Suture with Re-  
tation to Hernia Repair *Surg Gynec & Obst*  
1926 xlii 22

In the dog the internal oblique muscle and Poupart's ligament unite firmly when they are brought into apposition by suture even when considerable tension is exerted on the sutures

The formation of a raw surface by the resection of a small strip of the edge of the internal oblique tendon to make the union firmer than usual

When the fascia lata of the dog is sutured to the underlying muscle these structures unite firmly provided the intervening layer of the areolar tissue has been removed

Microscopic sections show that this union of muscle to fascia is accomplished by the growing together of the connective tissue fibers of the plane sheet of fascia (Poupart's ligament or fascia lata) with the fibers of the epimysium perimysium and endomysium

MARCUS H HOBART MD

## GASTRO INTESTINAL TRACT

Haudek The Reliability of the Gastric Niche in the  
Diagnosis of Ulcer (*Zur Frage der Verlässlichkeit  
der Magenische fuer die Ulcusdiagnose*) *Fortschr  
a d Geb d Roentgenstrahlen* 1925 xxvii 56 651

In the recent literature the reliability of the gastric niche in the diagnosis of ulcer has been questioned. Haudek regards it as an entirely reliable sign of ulcer when it is associated with the complete characteristic syndrome. The diagnosis is certain however only when the ulcer is situated in the middle portion of the stomach

Haudek discusses a few cases in which even though an ulcer is not found at operation, such a lesion may be present. Not uncommonly an ulcer is overlooked during operation. When the findings are apparently negative the gastroduodenal omentum should be split and the posterior wall of the stomach examined

Mention is made of cases reported by Simon and Altschul in which an apparent niche was produced by processes outside the stomach such as adhesions exerting traction on the serous side of a healed ulcer. Haudek calls attention to the diagnostic mistake in these cases and interprets the picture as a typical contrast filling of the duodenojejunal flexure within the gastric shadow. The error is attributed to the fact that because of his weakness the patient was not examined in the standing position. If he had been examined in this position the gastric and intestinal shadows could have been separated by pressure. Haudek denies the presence of a niche also in Alt-

schul's case in which a niche was simulated by a tumor in the tail of the pancreas with a focus of calcification

Serious difficulties arise undoubtedly in the presence of a diverticulum of the duodenojejunal flexure. In this condition as in cases of true gastric diverticula simulating niches mistakes may be made by even experienced examiners

With regard to reports by Reiche, Petren and Edlinger the author states that niches are not protrusions and that there is no premonitory symptom of perforation. Perforation is extraordinarily rare in niche formation because of the adhesions around the niche

It is easy to avoid mistaking a niche for an atypically situated dome of the left colonic flexure and for a pseudo niche in the angle which is nothing more than a normal bulging of the lesser curvature between two powerful peristaltic constrictions

The question as to whether a differentiation between ulcer and carcinoma is possible. Haudek answers affirmatively with regard to primary carcinoma situated in the descending portion of the stomach but admits that it may be uncertain when an ulcer shows malignant degeneration. He includes in his article a table of the roentgenological differences between the two lesions. It is admitted that in certain cases the differential diagnosis was not easy but to show that a correct diagnosis was made eventually. Haudek reports statistics demonstrating that a carcinoma was never found when a diagnosis of ulcer was made and an ulcer was never present when the diagnosis was carcinoma. ROSENBERG (Z)

Bufalini M Rational Surgical Treatment of Gastric and Duodenal Ulcer (*Sul trattamento chirurgico razionale dell'ulcera gastrica e duodenale*) *Arch Ital di chir* 1925 xiv 641

Bufalini reviews the results of the various methods of operation for ulcer from simple gastro-enterostomy to the most extensive resections and concludes that there is no method of treatment that furnishes an absolute guarantee against recurrence or the development of peptic ulcer

When resection was first performed numerous statistics were published which showed a much lower percentage of peptic ulcers after this operation than after simple gastro-enterostomy but as the late results have become more evident the difference is not nearly so great

In the attempt to prevent recurrence and peptic ulcer surgeons have passed from simple resection of the pylorus to resection of the antrum and then to subtotal and even total resections of the stomach with the idea of eliminating the hydrochloric acid which is supposed to be the cause of peptic ulcer

But von Haber found peptic ulcer in two persons in whom extensive resection had brought about complete absence of free hydrochloric acid

In view of this fact and the further facts that extensive resections have a mortality considerably higher than that of gastro enterostomy that they suppress not only the hydrochloric acid but also other necessary constituents of the gastric secretion and that they often cause serious digestive disturbances Bufalmi regards the simpler and more conservative operation as preferable unless there are special indications for extensive resection

AUDREY G MORGAN M D

#### Sole The Indications and Technique of Gastrectomy (Indicaciones y técnica de la gastrectomía) Arch argent de enferm d apar digest 19 5 1 196

In describing his method of performing gastrectomy the author makes no claims to originality but states that he has perfected the pre operative and postoperative care of the patient and his operative technique to such a point that the mortality of the operation has been reduced close to that of a simple gastro enterostomy He therefore feels justified in suggesting a further widening of its field of indications

With regard to the pre operative care he discusses the lowering of hypertension, the use of tonics digalen, polyvalent vaccines physiological saline solution glucose and insulin lavage oral and dental care breathing exercises and blood transfusion

Following the administration of morphine and scopolamine local anaesthesia is induced by the injection into the gastrohepatic omentum of 10 c cm of 1 per cent novocain

The operative technique is shown in ten illustrations Complications discussed include hepatic dysfunction acute gastric dilatation and partial occlusion of the orifice of anastomosis by spasm malposition and traction In the author's cases these complications are rare

The most important part of the report is the discussion of the indications for gastrectomy Gastrectomy is now considered the operation of choice for ulcer

Gastropylorctomy is indicated in all cases of ulcer of the lesser curvature both pyloric and juxtapyloric in which the process is limited the inflammatory infiltration is not too extensive the lesion is not too firmly adherent to the pancreas and the general condition is not unfavorable

Sole performs it also for ulcer at the point of gastroduodenal anastomosis (gastrojejunal ulcer) and in cases of duodenal ulcer In cases of diverticulum of the duodenum in which exclusion of the duodenum is desired, an antropylorctomy is preferable to simple exclusion It is of advantage also when in cases of supramesocolic or inframesocolic stenosis of the duodenum with dilatation difficulty is experienced in effecting a satisfactory duodenojejunostomy Contra indications to gastropylorctomy in ulcer are

1 Hæmorrhage In cases with hæmorrhage, operation may be considered only when there is repeated bleeding or the pulse is not above 100 and the tension is good

2 Inflammatory conditions When inflammation is present it may be prudent to await regression of the process and a more favorable condition before operating

3 Perforation into the free peritoneal cavity eight hours previously In cases of perforation into a closed cavity with perigastritis it is well to wait at least sixty days before doing a gastrectomy

With regard to the treatment of cancer the author urges a radical procedure and favors an exploratory laparotomy in order to get the patient operated upon early enough for radical resection

JOHN W BRENNAN M D

#### Erstmond C Gastro Intestinal Infection Its Roentgen Manifestations Brit J Radiol 1926 xxxi 93

Roentgenograms of the stomach frequently show usually on the lesser curvature, immediately behind the pylorus more or less localized filling defects which are manifestations of localized infections These defects are seldom over 1 1/2 in extent The infections are characterized by congestion, round cell infiltration, and fibrosis The affected part shows minute points of barium retention or local areas of exaggerated barium density or presents a rigid tubular aspect with a change in the peristaltic waves

Non ulcerative deformities of the duodenum are usually considered to be the result of adhesions secondary to pericholecystitis but the author believes that infection of the duodenum is commonly coincidental with infection of the gall bladder and that the changes noted in the roentgen examination are due to changes in the duodenal wall itself Adhesions may be the result of a periduodenitis as well as a pericholecystitis The roentgen findings are in constant irregularities of form due to the chronic round cell infiltration and fibrosis When the infection involves the second portion of the duodenum the rugal markings may be obliterated constrictions may occur or the emptying rate may be changed

Infection in the terminal ileum may produce rigidity and a change in the motility of the part which is demonstrable roentgenographically The rugæ may be flattened and there may be a variable irregularity of form and contracture of the lumen The pathological basis is the same as that in the stomach and duodenum Incompetency of the ileocecal valve is a frequent finding because the sclerotic condition prevents proper accommodation of the parts for closure of the valve

In the colon infiltration and fibrosis incident to chronic infection lead to loss of elasticity and irregularity of contraction The sigmoid is involved most frequently The author believes that in certain cases the formation of diverticula is an extension of the infectious process



variety which is more acute is destructive and ulcerative. The X-ray examination reveals gastric hypotonicity and intestinal hypermotility. The principal sign of ileocaecal or cæcocolic tuberculosis is the progressively increasing intolerance of the cæcum to any content. In the authors' cases with ulceration this was demonstrated by fluoroscopic observation and palpation. The only other case in which it was noted was a case of retroperitoneal sarcoma which had raised and displaced the cæcum.

The authors report five cases in which the diagnosis of caecal involvement was made from the X-ray findings. In these cases the cæcum was removed. When the diagnosis can be made from the clinical symptoms the condition is usually beyond operative relief. The evidence of gross pathological changes in the bowel before its resection was slight. In two cases only the appendix showed gross evidence of disease but in two others there were no significant changes in the appendix. The authors reject the theory that the appendix is the first intestinal localization of the disease.

In cases of tuberculoma or the hyperplastic type of intestinal tuberculosis surgical removal is often indicated to rule out malignancy or relieve obstruction. The results of resection of the cæcum in these cases are usually very satisfactory as not infrequently the patient is free from tuberculosis elsewhere. In the operation great care must be taken to prevent infection.

The article is supplemented by a number of roentgenograms  
WILLIAM J. PICKETT, M.D.

Ockin A. Acute Appendicitis. A Study Based on the Material of the Municipal Military Hospital of Moscow. (Die akute Appendicitis auf Grund des Materials des städtischen Soldatenkrankenhauses in Moskau). *Verhandl. d. 16. russ. Chirurgenkongr. Moskau 1924*.

Of 4,193 cases of appendicitis treated in the Municipal Hospital of Moscow 935 were acute. Six hundred and seven were operated upon; the ratio of those operated upon to those not operated upon being therefore 1:1.8. The critical period for the development of peritonitis is the first eight days. Later the tendency is toward abscess formation. Of the 328 cases treated surgically forty-two were operated upon on the first day, forty-four on the second day, twenty-seven on the third day, twenty-one on the fourth day, twenty on the fifth day, ten on the sixth day, twelve on the seventh day, six on the eighth day, eleven on the ninth day, six on the tenth day, fifty-six between the eleventh and eighteenth days, and seventy-three between the nineteenth and twenty-fourth days.

A diagnostic error was made in three cases (0.9 per cent). In 196 cases the appendix was removed; in 117 only a laparotomy or extraperitoneal section was done, and in fifteen a combined operation was performed.

The author usually operates within the first twenty-four hours. When early infiltration has

occurred without menacing symptoms he waits until the second day. At later stages he operates only on the most urgent indications.

Of the seventy-six deaths in the cases reviewed sixty-eight were due to diffuse peritonitis, four to localized peritonitis with abscess, one to narcosis, and three to severe complicating diseases. The total mortality in the cases of acute appendicitis was 8.1 per cent. In the cases operated upon it was 23.2 per cent. In the forty-two cases in which operation was performed on the first day there was one death; a mortality of 2.4 per cent. The cause of this death was peritoneal sepsis. In the forty-four cases operated upon on the second day there were eight deaths from diffuse purulent peritonitis; a mortality of 18.2 per cent. With operation on succeeding days the mortality rose to 33.3 per cent on the third day. In cases of diffuse peritonitis the mortality was 100 per cent.

Operation within the first twenty-four hours is urgently indicated, but in Russia this is not always possible on account of general conditions.

SCILACAK (Z)

Hertzler A. E. An Inquiry into the Nature of Chronic Appendicitis. *Am. J. Obst. & Gynec.* 1926, 11: 155.

Royston G. D. and Fisher A. O. Appendicitis in Pregnancy. *Am. J. Obst. & Gynec.* 1926, 11: 184.

From an investigation to determine the nature of chronic appendicitis HERTZLER draws the following conclusions:

1. Fibrotic changes in the appendix of whatever degree are not attended by clinical symptoms.

2. The anatomical structure of the appendix which is commonly removed on the diagnosis of chronic appendicitis shows no variation from that of the appendix of a person without any abdominal complaint whatsoever.

3. Considered in the light of like changes in other organs the minimal changes alleged to be present in cases of so-called chronic appendicitis are wholly inadequate to explain the symptoms ascribed to them.

4. Mere alleged relief of symptoms after the removal of the appendix is not sufficient to prove that the appendix was the cause of the symptoms.

5. The vast majority of patients subjected to appendectomy for chronic appendicitis do not claim relief of their symptoms.

6. The symptoms alleged to be due to chronic appendicitis can be relieved by searching out and removing the actual cause without molesting the appendix.

ROYSTON and FISHER state that acute appendicitis in pregnancy progresses very rapidly, and perforation is almost always followed by diffuse spread of peritonitis with little tendency toward localization and abscess formation.

In most instances the diagnosis is not difficult but in some cases the symptoms may be masked by the discomforts of a stormy pregnancy. In the presence

of acute abdominal symptoms suggesting appendicitis, the complication of pregnancy should be disregarded. Early interference in such cases is even more urgent, if possible, than in the ordinary case.

The authors are of the opinion that appendectomy should be recommended for women who had attacks of appendicitis before they became pregnant. Even though they successfully passed through one or more attacks, the risk of a recurrence during pregnancy is too great to be disregarded. The results of operation in the early months of pregnancy are apparently as good as those obtained in the non pregnant state and the danger of abortion is very slight. Ten cases are reported.

In the discussion of these reports HEYD said that much of the pathology of chronic appendicitis must be accepted on faith. He believes that the infected appendix should be regarded, not as a single isolated organ with symptoms of its own, but as an irritated viscus which interferes with the harmonious action of the entire gastro intestinal tract.

A number of years ago, when Heyd had occasion to tabulate the so called "cures" of chronic appendicitis by appendectomy he was greatly surprised to find that a cure was not obtained when the appendix was removed for simple localized pain on the right side, whereas in the cases in which the appendectomy was done for symptoms referable to the upper abdomen and there were no demonstrable pathological changes in either the gall bladder or the stomach a cure resulted almost invariably.

PHANEUF stated that in the late cases he found a gangrenous ruptured appendix and frequently he gaining general peritonitis due to lack of localization. A measure which may save life is enterostomy or cæcostomy done in connection with the appendectomy. In this procedure a pursestring suture of catgut is placed around the base of the appendix, the appendix is removed flush with the cæcum, a No. 28 French catheter is introduced into the opening and fastened to the edges of the wound with a stitch of catgut and the pursestring is tied. A second pursestring suture is usually employed to make the catheter more secure in the intestine. The catheter is brought out through a stab wound and the abdomen is drained by means of a cigarette drain through the primary incision.

This procedure makes it possible to control distention, establish drainage and introduce glucose solution directly into the intestine.

E. L. CORNELL, M. D.

Neumann, W. *Chronic Appendicitis According to the Statistics of the Municipal Military Hospital of Moscow* (Die chronische Appendicitis nach Angaben des städtischen Soldatenkovkrankenhauses in Moskau). *Verhandl. d. 16 russ. Chirurg. kongress, Moskau* 1904.

In the last thirteen years 3,258 cases of chronic appendicitis have been treated on the surgical division of the Municipal Military Hospital of Moscow. One thousand and sixty two of the patients were

males. Forty seven per cent of the patients were in the third decade of life.

Three thousand and eighty two of the cases were operated upon. In twenty one cases removal of the appendix was impossible because of deep infiltration. Local anesthesia was employed in 39 per cent.

Postoperative pneumonia occurred in ninety cases (3 per cent), and suppuration in 319 cases (10 per cent). There were twenty two deaths, a mortality of 0.7 per cent. The cause of death was narcosis in four, peritonitis in fourteen, sepsis in two, hæmophilia in one, and labor in one.

The author believes that appendectomy is indicated after one attack of appendicitis.

SCHAAK (Z)

Eliaeson, E. L. *Pylephlebitis and Liver Abscess Following Appendicitis*. *Surg. Gynec. & Obst.* 1906, vol. 510.

Pylephlebitis and abscess of the liver have come to be regarded by many surgeons as the same condition. Liver abscess may arise through four channels: the portal veins, the hepatic artery, the bile ducts, and possibly, although in no case has this been demonstrated, through the lymphatics.

When the hepatic artery is the portal of entry, the abscesses are small and multiple and death results from the original blood stream infection. When the bile ducts carry the infection the abscesses are distributed accordingly and pus is found in the ducts. In diffuse peritonitis the lymphatics are probably the carriers. It is only when the infection travels by way of the portal veins that both pylephlebitis and hepatic abscesses occur, even then the two conditions are not always associated, as is shown by one of the cases reported in this article.

Eliaeson has collected in all fifty three cases of pylephlebitis with twenty seven deaths, a mortality of 59 per cent. In some of these cases the diagnosis was not confirmed by operation or autopsy.

The signs and symptoms include fever, leucocytosis, pain, icterus, tenderness, œdema, nausea and vomiting, ascites, lassitude, anorexia and emaciation. The last three were marked in every case. In cases presenting the symptoms mentioned and in the region of the lower ribs in the mid axillary line a firm or boggy œdema with the characteristics of a lymph rather than a vascular œdema, Eliaeson believes an exploration is warranted. The X ray findings are important.

The author reports twelve cases of liver abscess and two of pylephlebitis. In seven of twelve cases of liver abscess only a single abscess was found. The oldest patient was 67 years of age. The youngest with abscess was 13 years old, and the youngest with pylephlebitis 7 years old. Seven of the fourteen patients survived. In the sixty seven cases reported to date—fifty three in the literature and fourteen reported in this article—the mortality was 54.5 per cent.

If a careful study of the reported cases is made two startling facts are brought to light: the first,

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

**Koontz A R** Muscle and Fascia Suture with Relation to Hernia Repair *Surg Gynec & Obst* 1926 xlii 222

In the dog the internal oblique muscle and Poupart's ligament unite firmly when they are brought into apposition by suture even when considerable tension is exerted on the sutures

The formation of a raw surface by the resection of a small strip of the edge of the internal oblique tendon to make the union firmer than usual

When the fascia lata of the dog is sutured to the underlying muscle these structures unite firmly provided the intervening layer of the areolar tissue has been removed

Microscopic sections show that this union of muscle to fascia is accomplished by the growing together of the connective tissue fibers of the plane sheet of fascia (Poupart's ligament or fascia lata) with the fibers of the epimysium, perimysium and endomysium

MARCUS H. HOBART, M.D.

## GASTRO INTESTINAL TRACT

**Haudek** The Reliability of the Gastric Niche in the Diagnosis of Ulcer (Zur Frage der Verlässlichkeit der Magenische fuer die Ulcusdiagnose) *Fortschr a d Geb a Roentgenstrahlen* 1922 xxviii 56 61

In the recent literature the reliability of the gastric niche in the diagnosis of ulcer has been questioned. Haudek regards it as an entirely reliable sign of ulcer when it is associated with the complete characteristic syndrome. The diagnosis is certain however only when the ulcer is situated in the middle portion of the stomach.

Haudek discusses a few cases in which even though an ulcer is not found at operation, such a lesion may be present. Not uncommonly an ulcer is overlooked during operation. When the findings are apparently negative the gastroduodenal omentum should be split and the posterior wall of the stomach examined.

Mention is made of cases reported by Simon and Altschul in which an apparent niche was produced by processes outside the stomach such as adhesions exerting traction on the serous side of a healed ulcer. Haudek calls attention to the diagnostic mistake in these cases and interprets the picture as a typical contrast filling of the duodenojejunal flexure within the gastric shadow. The error is attributed to the fact that because of his weakness the patient was not examined in the standing position. If he had been examined in this position the gastric and intestinal shadows could have been separated by pressure. Haudek denies the presence of a niche also in Alt-

schul's case in which a niche was simulated by a tumor in the tail of the pancreas with a focus of calcification.

Serious difficulties arise undoubtedly in the presence of a diverticulum of the duodenojejunal flexure. In this condition as in cases of true gastric diverticula simulating niches mistakes may be made by even experienced examiners.

With regard to reports by Reiche, Petren and Edlinger the author states that niches are not protrusions and that there is no premonitory symptom of perforation. Perforation is extraordinarily rare in niche formation because of the adhesions around the niche.

It is easy to avoid mistaking a niche for an atypically situated dome of the left colonic flexure and for a pseudo niche in the angle which is nothing more than a normal bulging of the lesser curvature between two powerful peristaltic constrictions.

The question as to whether a differentiation between ulcer and carcinoma is possible. Haudek answers affirmatively with regard to primary carcinoma situated in the descending portion of the stomach but admits that it may be uncertain when an ulcer shows malignant degeneration. He includes in his article a table of the roentgenological differences between the two lesions. It is admitted that in certain cases the differential diagnosis was not easy but to show that a correct diagnosis was made eventually. Haudek reports statistics demonstrating that a carcinoma was never found when a diagnosis of ulcer was made and an ulcer was never present when the diagnosis was carcinoma.

ROEDIGER (7)

**Bufalini M** Rational Surgical Treatment of Gastric and Duodenal Ulcer (Sul trattamento chirurgico razionale dell'ulcera gastrica e duodenale) *Arch ital di chir* 1925 xiv 641

Bufalini reviews the results of the various methods of operation for ulcer from simple gastroenterostomy to the most extensive resections and concludes that there is no method of treatment that furnishes an absolute guarantee against recurrence or the development of peptic ulcer.

When resection was first performed numerous statistics were published which showed a much lower percentage of peptic ulcers after this operation than after simple gastroenterostomy, but as the late results have become more evident the difference is not nearly so great.

In the attempt to prevent recurrence and peptic ulcer surgeons have passed from simple resection of the pylorus to resection of the antrum and then to subtotal and even total resections of the stomach with the idea of eliminating the hydrochloric acid which is supposed to be the cause of peptic ulcer.

The diagnosis is usually made from the hæmorrhage or the later evidence of perforation. The condition may be mistaken for perforated appendicitis. Operative intervention offers the only hope of cure. The diverticulum should be removed. If the patient's condition will not allow this, eventration of the loop and drainage of the peritoneum must suffice.

The authors report two cases of their own and review thirteen cases reported in the literature.

WILLIAM J. PICKETT, M.D.

**Pascale G. Peptic Ulcer of Meckel's Diverticulum**  
(Úlcera péptica del divertículo de Meckel) *Ann Ital di chir* 1925 14, 965

Only eight cases of ulcer of Meckel's diverticulum have been reported in the literature. In four the lesion was found at autopsy, and in the others, during emergency operations performed on various diagnoses.

The author reports a case of his own in which the diagnosis was made before operation. The patient was a 41 year old woman who, since 1912, had been having crises of pain in the para umbilical region without any true gastric pain or hæmatemesis, had passed blood mixed with pus per rectum, and had periods of obstinate constipation lasting for seven or eight days.

Appendicitis was excluded by the fact that there was no fever and the para umbilical pain did not radiate into the iliac fossa. The pain in ulcer of Meckel's diverticulum is independent of meals and of the kind of food eaten. It may be accompanied by gastric symptoms but not by vomiting or hæmatemesis. The hæmorrhage from the intestine is more serious the nearer the ulceration to the insertion of the mesentery. The longer the diverticulum and the nearer the ulcer to its tip the less the hæmorrhage.

In the case reported, the roentgen examination showed the stomach, duodenum and ileocecal region to be normal. At the site of the pain to the right of the umbilical region, was a loop of small intestine containing a dark, well defined shadow which suggested a calculus. A diagnosis of simple ulcer of the small intestine was made.

Operation revealed a Meckel's diverticulum with a calculus and the scar of a healed ulcer. As the appendix was entirely normal, it was not removed. The diverticulum was excised, the opening in the wall of the intestine sutured in three layers and the abdominal wound completely closed. Recovery was uneventful, and the patient has had no further symptoms.

Peptic ulcers of Meckel's diverticulum are identical with round ulcer of the stomach in their anatomical form, the condition of the tissues around them, and their course and outcome. In all of the cases in which a histological examination has been made, gastric mucosa has been found in the diverticulum. These islands of primitive embryonic gastric mucosa in abnormal surroundings develop abnormally because of lack of function, and the biological condition of the mucosa is affected by a change in the secretion

of the peptic glands which favors ulceration as the result of other vascular, nervous, and infective factors.

The only treatment is radical removal of the diverticulum.

AUDREY G. MORGAN, M.D.

**Castex M. R. Romano N. and Beretervilte, J. J.**  
Insufficiency of the Ileocecal Valve (La insuficiencia de la válvula ileo cecal) *Arch argent de enferm d apar digest*, 1925, 1 124

Experiments on animals and observations on man through a cæcal fistula have shown that the ileocecal valve is a true sphincter which retains faecal matter in the small intestine until digestion is complete and prevents regurgitation from the large intestine. Insufficiency of the valve may result from mobility of the cæcum, atrophy of the tissues, an inflammatory process, a congenital defect, or a tumor in the ileocecal region, but its most common cause is dilatation of the cæcum caused by simple stagnation of faecal matter, an excessive accumulation of gas, dyspepsia from putrefaction and fermentation, chronic colitis followed by atony of the wall, or parasitic colitis.

The symptoms are chiefly the general symptoms of intoxication but there is tenderness on pressure over the valve. The valve is situated at the intersection of a line connecting the highest point of the crests of the ilium with a line perpendicular to the middle point of Poupart's ligament. In some cases the distended cæcum can be seen in the right iliac fossa and pressure exerted with one hand on the ascending colon and the other on the cæcum so as to force the valve will make the swelling disappear. In roentgen examinations of 3,000 patients Case found insufficiency of the ileocecal valve in one sixth.

The clinical histories of twelve cases are reported with the roentgenograms. Except in extreme cases, the treatment is medical. The intestine should be evacuated three or four times a day. The best method of supplying sugar to the large intestine to favor the growth of flora that will protect against putrefaction is the administration of from 60 to 100 gm of lactose daily. Cases in which intestinal parasites are present should be treated with yatren, stovarsol, treparsol or emetine.

In sixty cases which Kellogg treated medically a cure was obtained in 36 per cent, improvement in 40 per cent, and slight benefit in 14 per cent. His radical surgical treatment consists in exteriorizing the ileocecal region making a U shaped suture to overcome the invagination of the small intestine and restoring the continuity of the ruptured habenua of the cæcum.

AUDREY G. MORGAN, M.D.

**Larimore J. W., and Fisher, A. O.** Tuberculosis of the Cæcum. *Ann Surg* 1926, LXXXII 496

Tuberculosis of the intestine is of three types—the hyperplastic the fibrous and the ulcerative. Primary intestinal tuberculosis tends to remain localized and to be hyperplastic, while the secondary

variety which is more acute is destructive and ulcerative. The X ray examination reveals gastric hypotonicity and intestinal hypermotility. The principal sign of ileocaecal or caecocolic tuberculosis is the progressively increasing intolerance of the caecum to ray content. In the authors' cases with ulceration this was demonstrated by fluoroscopic observation and palpation. The only other case in which it was noted was a case of retroperitoneal sarcoma which had raised and displaced the caecum.

The authors report five cases in which the diagnosis of caecal involvement was made from the X ray findings. In these cases the caecum was removed. When the diagnosis can be made from the clinical symptoms the condition is usually beyond operative relief. The evidence of gross pathological changes in the bowel before its resection was slight. In two cases only the appendix showed gross evidence of disease but in two others there were no significant changes in the appendix. The authors reject the theory that the appendix is the first intestinal localization of the disease.

In cases of tuberculoma or the hyperplastic type of intestinal tuberculosis surgical removal is often indicated to rule out malignancy or relieve obstruction. The results of resection of the caecum in these cases are usually very satisfactory as not infrequently the patient is free from tuberculosis elsewhere. In the operation great care must be taken to prevent infection.

The article is supplemented by a number of roentgenograms.

WILLIAM J. PICKETT, M.D.

**Ockin, A. Acute Appendicitis. A Study Based on the Material of the Municipal Military Hospital of Moscow.** (Die akute Appendicitis auf Grund des Materials des städtischen Soldatenkrankenhauses in Moskau.) *Verhandl. d. 16. russ. Chirurgenkongr. Moskau 1924.*

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A diagnostic error was made in three cases (0.9 per cent). In 196 cases the appendix was removed; in 117 only a laparotomy or extraperitoneal section was done, and in fifteen a combined operation was performed.

The author usually operates within the first twenty-four hours. When early infiltration has

occurred without menacing symptoms he waits until the second day. At later stages he operates only on the most urgent indications.

Of the seventy-six deaths in the cases reviewed, sixty-eight were due to diffuse peritonitis, four to localized peritonitis with abscess, one to narcosis, and three to severe complicating diseases. The total mortality in the cases of acute appendicitis was 8.1 per cent. In the cases operated upon it was 23.2 per cent. In the forty-two cases in which operation was performed on the first day there was one death, a mortality of 2.4 per cent. The cause of this death was peritoneal sepsis. In the forty-four cases operated upon on the second day there were eight deaths from diffuse purulent peritonitis, a mortality of 18.2 per cent. With operation on succeeding days the mortality rose to 33.3 per cent on the third day. In cases of diffuse peritonitis the mortality was 100 per cent.

Operation within the first twenty-four hours is urgently indicated but in Russia this is not always possible on account of general conditions.

SCHLACK (Z)

**Hertzler, A. E. An Inquiry into the Nature of Chronic Appendicitis.** *Am. J. Obst. & Gynec.* 1926, vi, 155.

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From an investigation to determine the nature of chronic appendicitis, HERTZLER draws the following conclusions:

1. Fibrotic changes in the appendix of whatever degree are not attended by clinical symptoms.

The anatomical structure of the appendix which is commonly removed on the diagnosis of chronic appendicitis shows no variation from that of the appendix of a person without any abdominal complaint whatsoever.

3. Considered in the light of like changes in other organs, the minimal changes alleged to be present in cases of so-called chronic appendicitis are wholly inadequate to explain the symptom ascribed to them.

4. Mere alleged relief of symptoms after the removal of the appendix is not sufficient to prove that the appendix was the cause of the symptoms.

5. The vast majority of patients subjected to appendectomy for chronic appendicitis do not claim relief of their symptoms.

6. The symptoms alleged to be due to chronic appendicitis can be relieved by searching out and removing the actual cause without molesting the appendix.

ROYSTON and FISHER state that acute appendicitis in pregnancy progresses very rapidly and perforation is almost always followed by diffuse spreading peritonitis with little tendency toward localization and abscess formation.

In most instances the diagnosis is not difficult but in some cases the symptoms may be masked by the discomforts of a stormy pregnancy. In the presence

of acute abdominal symptoms suggesting appendicitis, the complication of pregnancy should be disregarded. Early interference in such cases is even more urgent, if possible, than in the ordinary case.

The authors are of the opinion that appendectomy should be recommended for women who had attacks of appendicitis before they became pregnant. Even though they successfully passed through one or more attacks, the risk of a recurrence during pregnancy is too great to be disregarded. The results of operation in the early months of pregnancy are apparently as good as those obtained in the non pregnant state and the danger of abortion is very slight. Ten cases are reported.

In the discussion of these reports HEYD said that much of the pathology of chronic appendicitis must be accepted on faith. He believes that the infected appendix should be regarded, not as a single isolated organ with symptoms of its own, but as an irritated viscus which interferes with the harmonious action of the entire gastro intestinal tract.

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The author believes that appendectomy is indicated after one attack of appendicitis.

SCHAAER (2)

Eliason, F. L. Pylephlebitis and Liver Abscess Following Appendicitis. *Surg., Gynec. & Obst.*, 1926, vol. 510.

Pylephlebitis and abscess of the liver have come to be regarded by many surgeons as the same condition. Liver abscess may arise through four channels: the portal veins, the hepatic artery, the bile ducts, and possibly, although in no case has this been demonstrated, through the lymphatics.

When the hepatic artery is the portal of entry, the abscesses are small and multiple and death results from the original blood stream infection. When the bile ducts carry the infection, the abscesses are distributed accordingly and pus is found in the ducts. In diffuse peritonitis the lymphatics are probably the carriers. It is only when the infection travels by way of the portal veins that both pylephlebitis and hepatic abscesses occur, even then, the two conditions are not always associated, as is shown by one of the cases reported in this article.

Eliason has collected in all fifty three cases of pylephlebitis with twenty seven deaths, a mortality of 59 per cent. In some of these cases the diagnosis was not confirmed by operation or autopsy.

The signs and symptoms include fever, leucocytosis, pain, icterus, tenderness, oedema, nausea and vomiting, ascites, lassitude, anorexia, and emaciation. The last three were marked in every case. In cases presenting the symptoms mentioned and, in the region of the lower ribs in the mid axillary line a firm or boggy oedema with the characteristics of a lymph rather than a vascular oedema, Eliason believes an exploration is warranted. The X ray findings are important.

The author reports twelve cases of liver abscess and two of pylephlebitis. In seven of twelve cases of liver abscess only a single abscess was found. The oldest patient was 67 years of age. The youngest with abscess was 13 years old, and the youngest with pylephlebitis, 7 years old. Seven of the fourteen patients survived. In the sixty-seven cases reported to date—fifty three in the literature and fourteen reported in this article—the mortality was 54.5 per cent.

If a careful study of the reported cases is made, two startling facts are brought to light: the first,

that in every case a provisional diagnosis or a retained diagnosis of right basal pneumonia was made and the second that a positive operative diagnosis was made very tardily. The treatment was surgical.

The author draws the following conclusions:

1 Pylephlebitis and liver abscess are not identical. They occur as a complication in from 0.1 to 0.4 per cent of cases of appendicitis.

2 The X-ray and fluoroscope aid in the early diagnosis by showing a high diaphragm, the movement of which is sometimes restricted.

3 Local edema and prominent veins are valuable diagnostic signs.

4 Pain is not always present. It is noted most when the infection is in or on the upper surface of the liver.

5 Pneumonic signs are frequently the result of lung compression rather than pneumonia.

6 Jaundice is practically a constant sign.

7 The presence of lassitude and anorexia is very suggestive in the diagnosis.

8 The prognosis is not always poor since recovery results in 54 per cent of the cases.

9 Operation through the diaphragm is the treatment of choice.

CARL R. STEINKE, M.D.

**Cantelmo O.** An Experimental Study of the Histopathology of Ileosigmoidostomy. (Contributo sperimentale alla fisiopatologia delle ileosigmoidostomie). *Ann. Ital. di Chir.* 10: 519, 1901.

Cantelmo reports his experimental work on eight dogs. The histological structure and function of the colon are practically the same in the dog and man, but in the dog there is no sigmoid in the true sense of the word, the descending colon passing to the ampulla without any flexure. Anastomosis between the ileum and the lower part of the colon in the dog is equivalent to ileo sigmoidostomy in man.

Four of the author's dogs died, the mortality being therefore 50 per cent. In all of those which died the intestine was full because a purgative had not been given or an enema was not effective. In the only one of these dogs in which no operative measures had been taken to exclude the intermediate tract of the intestine, nutrition remained normal while in the three in which steno is of the intermediate tract had been brought about, nutrition was very poor.

The report is supplemented by roentgenograms of the eight animals. From these and examinations of the specimens the author concludes that in the dog a low ileocolostomy has little effect in deviating the current of intestinal contents from its normal path unless operative measures are taken to bring about steno is of the intermediate tract. The current passes over the anastomotic opening without becoming engaged in it and follows its old path unless the lumen of the ileum is obstructed in some other way as for example by peritoneal bands. If the ileocolostomy is supplemented by stenosis of the post anastomotic segment of the intestine, the current is deviated and passes through the new opening. When under the same experimental conditions the post

anastomotic ileum is obstructed, the pre anastomotic part of the colon assumes a compensatory function in acting on the chyme which flows back from the post anastomotic terminal colon. The reflux into the intermediate colon following a low ileocolostomy does not seem to be any greater than is necessary for this compensating action.

In comparing low ileocolostomy with anastomosis between the ileum and higher segments of the colon, the author found that the former is less apt to be followed by reflux into the cecum with stagnation of the intestinal contents. After a high anastomosis enormous accumulations of feces sometimes occur in the cecum. Low ileocolostomy had the disadvantage of excluding a long tract of the intestine while high anastomosis is associated with the danger of serious reflux. The author believes that the former is less dangerous than the latter.

AUDREY G. MORGAN, M.D.

**Mandl F.** The Field of Application of the Primary and Secondary Drawing Through Procedure Following Resection of Rectal Cancer by the Sacral Route. Also a Demonstration of the Possibility of Artificial Prolapse and Its Application. (Zur Anwendungsbreite des primären und sekundären Durchzugsverfahrens nach Resektion des Mastdarmkrebses auf sakralen Wege gleichzeitiger Hinweis auf die Möglichkeit einer künstlichen Prolabierung und deren Ausnutzung). *Arch. f. klin. Chir.* 1925, cxviii, 479.

Even though a number of leading surgeons have recently contended that a truly radical operation for cancer of the rectum can be accomplished only by a combined operation, the sacral operation is still regarded as the method of choice at the Hochenegg Clinic.

In the author's opinion the drawing through procedure is the safest method of treating the gut after resection of the rectum. He attributes Kirschner's poor results with it to its performance in the absence of a definite indication and the use of an incorrect technique.

Congrene of the gut must be avoided. The part of the gut to be drawn through must be well nourished; therefore no blood vessel that is important for its nutrition should be ligated, and the part of the gut drawn through must not be subjected to too great tension. The proximal portion of the intestine must be applied to the anus or the peripheral portion of the gut without tension.

In order to maintain the viability of the part of the gut drawn down, the wound cavity should be made as small as possible, the soft parts drawn toward the intestinal wall, and care taken that gauze tampons are not placed tightly around the gut. In cases in which from the beginning errors of asepsis cannot be avoided, the surgeon should proceed antiseptically by wiping with Pregel's iodine solution.

Before the gut is drawn through, the proximal portion should be closed completely with gauze.

In the peripheral portion of the rectum the mucosa should first be removed.

The technique as regards the portion of the gut brought to the anus should be as simple as possible.

In the after treatment, it is most important to prevent stenosis of the anus. Consequently the sphincter portion must be subjected to the systematic use of bougies, beginning about ten days after the operation.

The author discusses also the so called secondary drawing through technique of Weil. For cases in which after resection of the rectum, there is complete separation of the afferent portion of the gut from the anal portion with prolapse of the former, Weil suggested drawing the prolapsed portion of the gut through the peripheral portion after opening of its upper cicatricially contracted end. On the basis of quite a large number of favorable results obtained with this method the author suggests that in every case in which a resection can be undertaken with maintenance of the sphincter portion and in which any difficulty is experienced in the circular suture or the drawing through method the sphincter portion be left and the proximal portion of the sacral anus be loosely sutured. An attempt might then be made to produce a prolapse from the sacral anus by artificial methods. With the development of the prolapse the quite reliable secondary drawing through procedure could be done.

DECKS (Z)

**Powlewicz A Imperforate Anus Corrected by Operation Associated Megacolon** (Imperforation anale opérée et guérie megacolon sigmoïdien concomitant) *Bull Soc d'obst et de gynéc de Par* 1925 vii, 637

The author reports the case of an infant which was brought for treatment on the third day after birth because of vomiting, abdominal distention and absence of bowel movements. Examination revealed complete absence of the anus. The skin over the anal region was perfectly smooth.

Operation was performed immediately. Through a longitudinal median incision and an incision joining the ischial tuberosities, the blind pouch constituting the rectum was found  $1\frac{1}{2}$  cm below the surface. This pouch was opened, drawn down and sutured to the skin. The infant recovered, and when seen a year later was normal. At that time, at the suggestion of Couvelaire, the intestine was examined with the X ray. This examination revealed marked distention of the sigmoid and of the lower part of the descending colon. As no secondary constriction had followed the operation, the distention was regarded as congenital.

In the discussion of this case COUVELAIRE cited a case of the same type in which the megacolon was not discovered until adult life. The patient, a woman, was operated upon in the third month of pregnancy for what was thought to be a cyst. Instead a dilated pelvic colon containing a fecal impaction was found. The fecal mass was broken up. After the operation the pregnancy continued normally to term.

ALBERT F. DE GROOT M.D.

**Madelung O W Empalement Wounds of the Anus and Rectum** (Pfaelungungsverletzungen des After und des Mastdarms) *Arch f klin Chir*, cxcvii 1

The author collected 276 cases of empalement wounds of the anus and rectum. Thirty five years ago he pointed out the importance of this type of injury and since that time has followed the subject with special interest.

Madelung describes the different methods by which such wounds may be produced and their character. They may be classified anatomically into wounds of the rectum and their complications such as wounds of the vagina, the connective tissue, and the bones of the pelvis; wounds of the bladder and urethra; and wounds of the peritoneum and the intraperitoneal organs.

The clinical course varies according to the severity of the injury. Of the patients whose cases are reviewed twenty nine died within the first forty eight hours. The symptoms associated with each type of wound are described. Peritonitis in particular is discussed. Of 103 cases of involvement of the peritoneum peritonitis developed in eighty four. Thirty two of the patients with peritonitis recovered. Of these twenty three were subjected to laparotomy. Fifty two died.

Of the 103 persons sustaining a rectal wound opening into the peritoneal cavity, forty three recovered and sixty died. Of forty four who were subjected to laparotomy twenty nine recovered and fifteen died.

In the diagnosis, attention should be given to the direction and depth of the empalement, particularly with regard to the presence of an opening into the peritoneal cavity. The author gives detailed instructions concerning the examination in different types of injury.

The patient should be treated in a hospital, since even when the external wound is small there may be a severe internal injury. When possible he should be transported to the hospital in the sitting position.

In doubtful cases a laparotomy should be performed without delay, involvement of the peritoneum is nearly always disclosed. Enemata should never be given under any circumstances. External suture of the wound is also dangerous. The treatment indicated in involvement of the different organs is described in detail.

SCHUEVEMANN (Z)

## LIVER, GALL BLADDER, PANCREAS, AND SPLEEN

**Fetter W J The Present Status of Functional Tests of the Liver** *Atlantic M J* 19 6 xix 289

**Grier G W X Ray Diagnosis of Diseases of the Liver and Gall Bladder** *Atlantic M J* 1926 xix

**MacLachlan W W G The Significance of Bile Pigment** *Atlantic M J* 1926 xix 297

FETTER attaches definite clinical value to the liver function test with phenoltetrachlorophthalen according to the method of Rosenthal, a procedure in which



the rate of liver excretion is estimated by determining the amount of the dye retained in the blood serum. However when obstructive jaundice is present the value of the test is lessened because liver function and jaundice are parallel in degree. The dye test is indicated therefore in non obstructive cases.

The tolerance tests of the functional capacity of the liver when dealing with carbohydrates Fetter has found disappointing.

Grier states that the X ray is of little aid in the diagnosis of liver disease unless the contour of the organ has been changed by disease. Direct evidence of carcinoma or other tumors can sometimes be obtained by roentgen examination and shadows of stones in the gall ducts or gall bladder are often demonstrated.

When stones fail to cast shadows their presence may be revealed following the use of sodium tetraiodophenolphthalein which is excreted through the liver and renders bile opaque to the X ray thus causing shadows corresponding to the shape of the gall bladder whenever it is possible for the dye laden bile to enter that organ. The absence of the gall bladder shadow when the technique is dependable indicates obstruction of the cystic duct.

Grier advocates the use of pneumoperitoneum in the differentiation of liver disease from other conditions in the hepatic region such as pathological masses above the diaphragm.

MacLachlan gives a comprehensive review of the theories of the formation of bile pigment citing the opinions of Blankenhorn, McNee, Mann, McMas ters, Whipple, Hooper, Rous, Van den Bergh, Muel engrath, Rich, and Bumstead.

He believes that bile pigments can be produced without the liver, the liver merely storing or excreting them. He uses the tests for bile pigments as an aid to early diagnosis. Attention is called to the fact that the classical examination of the sclera and skin in bright daylight seldom fails to reveal icterus if it is present.

When MacLachlan desires to make a test for bile pigments in the urine he instructs the patient to decrease his fluid intake in order to concentrate the urine. DE VIS W. CRUE, M.D.

**Snell A. M.** The Clinical Application of Recent Studies on Jaundice. *Surg Gynec & Obst.* 1926 xlii 328

Recent physiological studies have definitely established the fact that bilirubin the principal pigment of human bile is formed outside the liver from hemoglobin. Mann and his coworkers at the Mayo Clinic have brought forward evidence to show that this transformation is effected chiefly in the spleen and bone marrow, presumably through the agency of the reticulo endothelial system.

According to McNee an excess of bile pigment in the blood stream may be due to (1) the excessive production of bilirubin from hemoglobin, (2) obstruction in the bile passages with subsequent reab-

sorption of bilirubin or (3) disturbance of the function of the polygonal liver cells and their failure to excrete bilirubin in quantities sufficient to keep pace with production.

The types of jaundice resulting from these conditions may be classified as hemolytic, obstructive and toxic or infectious. A basis for differentiation is furnished by van den Bergh's test, which gives an indirect reaction in hemolytic jaundice, a direct reaction in obstructive jaundice and either a delayed biphasic or direct reaction in the toxic or infectious type. This test while not an entirely satisfactory basis for such differentiation is most useful in the recognition of latent jaundice and the quantitative study of bile pigments in the blood stream.

It has been difficult to show changes in carbohydrate and protein metabolism in jaundiced patients by means of functional tests but in jaundiced animals diminished fructose tolerance and lowering of the blood urea occur quite constantly. Since a liberal supply of carbohydrate has been shown to protect the liver from toxic injury, and since defective carbohydrate metabolism is known to accompany jaundice, diets high in carbohydrates and intravenous injections of glucose have been used clinically in such cases with gratifying results.

In studies of liver function in experimental animals and in patients a remarkable parallelism between the degree of jaundice and the degree of retention of dyes such as phenoltetrachlorophthalein is shown. The reasons for this are obscure, but certain observations seem to show that the dye retention may be due to functional impairment in the liver cells as well as to a pathological change. This is demonstrated by the fact that dye retention accompanies intravenous injections of sublethal doses of dilute whole bile and that there is an immediate development of high grade dye retention in experimental animals after cholecystectomy and ligation of the common duct. In such cases no adequate pathological basis for the dye retention can be demonstrated. It is apparently not justifiable to reckon damage to the hepatic parenchyma due to jaundice in terms of phenoltetrachlorophthalein retention alone. A number of other factors must be taken into account.

Other constituents of bile such as taurocholic and glycocholic acid are retained during obstructive jaundice and may have a profound effect on the organism. Recent methods have been developed for the study of bile acids in the blood and at the Mayo Clinic experimental and clinical work is being undertaken to determine their rôle in obstructive and associated jaundice.

**Rodríguez M. C.** Primary Hyponemumocyst of the Liver (Hionemumocysta primitiva del hígado). *Semanas Méd.* 1925 xxxv 824

The author reports two cases of primary hyponemumocyst of the liver with postoperative septic complications. The first patient was a man of 37 years who came for treatment for pain in the right hypochondrium, slight fever, and a subicteric color

of the conjunctiva. After he had been in bed under observation for a week he was suddenly seized with intense pain in the right hypochondrium associated with vomiting a small, rapid pulse, and a temperature of 35.9 degrees C.

On examination, the right lobe of the liver was found greatly enlarged and the liver dulness replaced by tympany. An eosinophilia of 4 per cent was present. The Wassermann test was negative. The stools were colorless. No parasites, ova, or vesicles were discovered. Roentgen examination showed the right side of the diaphragm to be very high and almost motionless, and disclosed, beneath the diaphragm, a semilunar clear zone bounded below by a straight line which moved when the patient's position was changed.

At operation, performed under ether anaesthesia, a cyst was found in the liver and a large amount of gas, pus, and vesicles was discharged. Free drainage was established.

On the twelfth day the patient's temperature was 40 degrees C, profuse sweating occurred, the pulse was small and rapid, and there was marked prostration. A frank septicæmia then developed with cardiac weakness and a temperature varying from 37 to 41 degrees C. Under treatment with autogenous vaccines, fixation abscesses and irrigation of the abscess cavity with a disinfectant, the patient recovered.

The second case was that of a man of 35 years who four years ago, had had pain in the right hypochondrium radiating to the shoulder. This pain ceased spontaneously but a short time before the patient consulted the author it recurred suddenly with nausea and vomiting, a temperature of 40 degrees C, frequent urination and copious diarrhoea.

On examination, the right lobe of the liver was found enlarged. Extending from the fourth rib to the costal margin was a tympanic zone surrounded by dulness. The intradermal hydatid test was weakly positive. The eosinophiles equaled 23 per cent. The Wassermann test was negative. The roentgen picture was similar to that in the author's other case.

Operation was performed under novocain-adrenaline anaesthesia by the transpleurodiaphragmatic route. The abscess was found about 1 cm. below the surface of the liver. A large amount of gas and fetid pus containing vesicles was discharged. Free drainage was established. Signs of insufficiency of the liver developed a week later, and the patient died after two days.

AUDREY G. MORGAN M.D.

Ricena L. Cholecystitis and Diabetes. *Northeast Med.* 1926 xxv 191.

In injection experiments on dogs the author succeeded in demonstrating that lesions of the islands of Langerhans resulting in the symptoms of diabetes can be produced by hæmatogenous infection maintained for a sufficiently long period of time. The fact that he never succeeded in lowering the sugar tolerance of animals in which the gall bladder had been removed suggests that the infected gall bladder may

damage the pancreas, and particularly the islands of Langerhans, to such an extent as to produce diabetic symptoms.

Whenever the injections produced a febrile reaction, the micro organisms injected were found in the gall bladder. This explains in part at least, the well known fact that infections seriously aggravate the symptoms of diabetes. CARL R. STEINKE M.D.

Martin E. D. Complete Cholecystostomy Versus Cholecystectomy in Cases of Empyema of the Gall Bladder. *South M. J.* 1916 xix 198.

The author describes an original surgical procedure for the relief of the patient who is acutely sick from empyema of the gall bladder. This operation may result in a cure and requires no more time than that necessary for drainage of the gall bladder. It was first employed as a temporary and life saving measure. To date it has been performed in twelve cases with satisfactory and permanent results, but it is not recommended to replace cholecystectomy when the latter is indicated and can be done without increasing the risk.

The usual incision is made through the right rectus and the other abdominal viscera are packed off sufficiently to expose the gall bladder from its fundus to the cystic duct. The gall bladder is emptied with suction apparatus, swabbed out with iodine, and then packed with gauze to prevent the escape of pus when it is opened. It is incised from the fundus to the cystic duct. If the gall bladder is small, no effort is made to remove redundant tissue. If it is greatly distended, as much of its wall is cut away as necessary and all bleeding points are ligated. A cigar drain with a tube in the center is sutured against the mucous surface. No adhesions are freed except those interfering with the performance of the operation. The complications of the operation have been negligible.

SHIRLEY C. LYONS M.D.

Giordano D. The Development of Carcinoma in Calculous Cholecystitis (Della comparsa di carcinoma entro a talune colecisti calcolose). *Riforma med.* 1915 vi 1157.

Giordano has found cancer in one of every seven cases in which he has performed an operation for gall stones. He reports the case of a 63 year old woman in whom an operation for gall stones revealed an adenoma of the gall bladder. The patient was living and well fourteen years after the operation. Giordano believes that if the tumor had not been removed, it would probably have undergone malignant degeneration.

A man 61 years old who was operated upon for gall stones and found to have cancer had suffered from attacks of gall stone colic for twenty five years. Giordano believes that if this patient had been operated upon earlier his life would have been saved.

In another case a cancer of the pancreas was found.

Giordano concludes that the irritation of gall stones is often responsible for the development of

cancer and while he does not hold that operation should be performed immediately in every case of gall stone colic he believes that if a reasonable period of medical treatment does not cure the symptoms, the patient should be sent to the surgeon as operation may save him not only from gangrene or perforation of the gall bladder and suppurative cholangitis but also from malignant degeneration

AUDREY C. MORGAN M.D.

**Castex M. R. and Galan J. C. Giardiasis of the Biliary Tract** (La giardiasis de las vías biliares) *Arch. argent. de enferm. d. apar. digest.* 1925 1 30

The giardia intestinalis is a flagellate protozoan which inhabits the intestine of man and some animals. It was first described by Lambl in 1850. In 1888 it was named lamblia intestinalis by Blanchard.

The parasite has two forms, the vegetative and the cystic. Its chief habitat is the duodenum and the upper part of the jejunum but it sometimes enters the gall bladder or bile ducts and in exceptional cases the stomach. It may be found in the faeces or the fluid obtained by sounding the duodenum. The manner in which the infection occurs in man is not known. Rats, mice and cats have been considered hosts of the parasite but the identity of the types occurring in man and animals has not yet been proved. Some investigators believe that the parasite is water borne as it has been found in the sediment of porcelain filters.

A greater number of the authors' patients with giardiasis have suffered from constipation than from diarrhoea. The syndrome includes dyspepsia, anorexia, loss of weight, painful distention of the abdomen and enlargement of the liver, the last sometimes associated with pain and occasionally associated with icterus. In some of the cases there was pain in the duodenal region coming on two or more hours after meals, resembling that of duodenal ulcer or chronic cholecystitis and associated with vomiting, eructation or nausea. In almost all of the cases the condition was accompanied by headache, pain in the nape of the neck, physical and mental prostration, insomnia, neuralgia and painful precordial oppression. In some cases there were symptoms resembling those of true cholelithiasis. Icterdodinitis was found in many. The clinical details of nine cases are given.

Giardiasis is one of the most difficult parasitic diseases to cure. The authors have obtained the best results with alvarsan. Experiments on animals have shown that alvarsan must be given in large doses but this is more or less dangerous as the liver is enlarged and hepatic function is more or less insufficient. Kantor recommends beginning with 0.60 gm. and increasing the dose rapidly to 0.90 gm.

AUDREY G. MORGAN M.D.

**Coffey R. C. Dilatation of the Common Bile Duct in the Absence of a Functioning Gall Bladder** *Ann. Surg.* 19 6 LXXXIII 479

The author has demonstrated by experiments that when a duct is implanted without valve forma-

tion the duct dilates but when a valve is produced it does not dilate. The pressure within the gall ducts is much less than the static pressure within the bowel. Peristalsis within the duodenum produces an interval of lower pressure or a relative vacuum during which bile may escape into the duodenum. When the duodenum is at rest the valve at the outlet of the duct is closed and bile must remain in the biliary system.

The gall bladder is the chief reservoir for bile when digestion is not going on. In the absence of a functioning gall bladder due to disease or removal of the organ the bile ducts become dilated. This dilatation is not entirely harmless as the author demonstrates by the histories of two cases in which the gall bladder had been removed for gall stones. In both of these cases the symptoms continued and at a second operation performed some time later the common duct was found dilated to the diameter of  $\frac{3}{4}$  in. and greatly thickened. The bile within the duct was normal in color and consistency and there was no evidence of stone formation or other obstruction.

The author concludes that dilatation of the ducts is alone sufficient to account for the persistence of symptoms.

WILLIAM J. PICKETT M.D.

**Chiray Lebon and Gozlan. A Study of External Pancreatic Insufficiency as Indicated by the Enzymes in the Duodenal Juice Removed with a Sound** (Étude de l'insuffisance pancréatique externe par le dosage des enzymes dans le suc duodénal prélevé par tubage) *Bull. et mém. Soc. méd. d. hôp. de Par.* 1925 XI 1646

The authors studied pancreatic function by determining the enzymes in the duodenal juice before and after the administration of a pancreatic stimulant. While there are many substances that stimulate pancreatic secretion most of them are unsatisfactory for such studies as they stimulate also the secretion of the stomach, liver and intestines as a result the pancreatic juice is greatly diluted and the dilution brings about a decrease in the concentration of the enzymes that may appear pathological when it is not. This source of error was found with the use of hydrochloric acid, ether, peptones, insulin, histamin and secretin.

Of the substances investigated only milk gave a practically constant increase in the enzymatic power of the duodenal juice and as this fact was discovered only recently exact measurements of the normal and pathological values of the external pancreatic secretion have not yet been worked out. From the findings made to date it appears that the lipase activity of the duodenal juice collected under the conditions mentioned should exceed 50 c. cm. of decinormal soda and the proteolytic activity should exceed 10 c. cm. of decinormal soda.

After the introduction of the duodenal sound from 40 to 60 c. cm. of a solution of 33 per cent magnesium sulphate is first introduced to empty the gall bladder of its contents. After the evacuation of all of the

gall bladder bile and a few cubic centimeters of Bile C, 60 c cm of warm whole milk is injected slowly. The opening of the sound is then closed to keep the milk from flowing out. At the end of half an hour the duodenal juice is removed by aspiration or siphonage. Sometimes it is necessary to inject a little warm water to start the flow. In the duodenal fluid removed in this way the ferments are measured at intervals of ten minutes; the lipase being determined by the author's modification of Bondi's method and the trypsin by the method of Gaultier, Roche and Baratte.

Damade and Grailly attribute the stimulating action of milk on the pancreas chiefly to the milk fat as they found a greater increase in the ferments after the use of whole milk than after the use of skimmed milk. AUDREY G. MORGAN, M.D.

Escudero P. H. Terrada, H. M. and Gallino M.  
Cystic Tumors of the Head of the Pancreas  
Roentgenological Diagnosis (Tumors quísticos de la cabeza del páncreas diagnóstico radiológico)  
*Arch. argent. de enferm. d'apar. digest.* 1925 1: 342

A discussion of the X-ray picture of pancreatic tumor of the cystic type is followed by a brief review of the clinical findings in a case studied by the authors. In the latter the tumor was visible in the right epigastrium and was palpated as an irregular, firm mass located chiefly in the right epigastrium and the umbilical region. It could be displaced over into the left side of the abdomen and a couple of fingerbreadths downward without causing pain but pressure over the left pole or attempts to displace the mass upward resulted in intense pain in the lumbar region. The tumor itself was insensitive.

X-ray examination at the time of the ingestion of the contrast medium and at the fourth, sixth, eighth, and eighteenth hour demonstrated only a long vertically placed stomach with the floor of the antrum below the level of the iliac crest; the whole displaced to the left, and progressive stages of filling of the duodenum, which encompassed the tumor forming a large C with its concavity to the left. The duodenum was somewhat dilated, and its shadow curve was cut off suddenly as though the duodenal lumen had been closed by compression at the point where the inferior and ascending part crossed the vertebral column. Good roentgenograms were obtained only by filling the stomach with contrast material and then expressing the material manually through the pylorus into the duodenum. It was impossible however to force the contrast material or to introduce the duodenal sound beyond the point of seeming compression.

The condition was diagnosed as a tumor compressing the stomach at the greater curvature causing deformity of the antrum and dislocation of the pylorus and gravely compromising gastric evacuation. Operation disclosed a cystic tumor compressing the stomach and duodenum but without adhesions. Upon incision, the mass suggested a round cell sarcoma which was not removable. A gastro enteros-

tomy was effected with relief of the symptoms due to poor evacuation of the stomach and duodenum.

JOHN W. BRENNAN, M.D.

Ashby, H. T. and Southam A. H. Splenic Anæmia of Young Children Treated by Splenectomy. *Brit. M. J.* 1926 1: 411

Splenic anæmia of young children, sometimes called von Jaksch's disease, occurs in the first three years of life and is characterized by marked enlargement of the spleen and general debility. The condition is chronic and in advanced cases the prognosis is unfavorable.

In the treatment the X-ray, arsenic and iron have been found of little value. The authors report three cases treated during the past year by splenectomy preceded by roentgen irradiation and blood transfusion. In all of these cases there has been apparently rapid improvement in both the general health and the blood picture.

I. EDWARD BISHKOW, M.D.

Whipple A. O. Splenectomy as a Therapeutic Measure in Thrombocytopenic Purpura Haemorrhagica. *Surg. Gynec. & Obst.* 1926 41: 329

The etiology of purpura hæmorrhagica is not known; the pathology ill defined and the differential diagnosis at times difficult. In the treatment, splenectomy is done because in many cases of chronic purpura the spleen is enlarged and as the removal of the normal spleen results in an initial increase in blood platelets the procedure seemed logical in a disease characterized by a low platelet count. As the reticulo endothelial cells get rid of jaded or excessive blood platelets it seemed logical to assume that in a disease such as purpura hæmorrhagica in which the platelets are few or absent, some part of this system is overactive and if the overactive cells are largely limited to the spleen the removal of this organ would promise good immediate and probably permanent results. On the other hand if the entire reticulo endothelial circle is involved splenectomy would remove only a part of the overactive apparatus and in the presence of such a profound vascular disturbance as that in the acute form of purpura would be extremely hazardous.

It appears that in purpura hæmorrhagica the blood platelets are formed in normal numbers but are destroyed by overactive phagocytosis in the spleen and other parts of the reticulo endothelial apparatus.

Purpura hæmorrhagica is characterized by five fairly definite findings: (1) paucity or absence of platelets; (2) a prolonged bleeding time; (3) failure of the clot to retract; (4) a normal clotting time; and (5) the appearance of petechiæ in the skin of an extremity below a tourniquet applied to shut off the venous but not the arterial flow.

When once the diagnosis has been made it must be determined whether the disease is present in the chronic recurrent form or in the acute fulminating form. The former type is usually cured by splenec-

tomy promptly and permanently while the latter is seldom influenced favorably by it

Of eighty one collected cases eight were operated upon during the acute stage with seven deaths. In seventy three cases of the chronic form there were only six postoperative deaths

HARRY W. FINK, M.D.

# Mayo W. J. The Mortality and End Results of Splenectomy *Am J M Sc* 1926 clviii 313

Before recommending the removal of a diseased spleen the physician must satisfy himself that cure by medical measures cannot be expected and that the prospects of cure by splenectomy are sufficiently good to make the operation worth the immediate risk to the patient

The author's purpose in this communication is to analyze briefly from the standpoint of operative mortality the experience with 417 cases in which splenectomy was performed and to comment on the after history of the patients as related to the operation

The spleen is a hæmolymp gland which belongs to the reticulo endothelial system and has three known functions. Its first function is to filter from the blood stream micro-organisms and various toxic agents. These it destroys or sends to the liver for destruction or detoxication. The failure of the spleen to function as a filter results in its enlargement as in malaria and syphilis and the chronic toxic spleno megaly of the splenic anemia type

The second function of the spleen is to produce white blood cells one of the most important being the lymphocyte without which there would be no healing of wounds or repair in the body. All of the white blood cells have defensive functions especially the large mononuclear endothelial leucocyte. In cases of leukæmia a malignant expression is manifested in the unlimited production of white blood cells which have the power of oxidation through their nuclear activities but are without function because of the lack of cytoplasmic control

The third function of the spleen is to destroy worn out or deteriorated red blood cells a process in which bile pigments are found. An unnecessary destruction of the red blood cells which produces the sub oxidation of anemia is one result of excessive splenic activity due to an increase in the size of the spleen from any cause. A specific action of the spleen on red blood cells is seen in its destruction of red cells with increased fragility as in cases of hæmolytic icterus and the destruction of the blood platelets which is characteristic of chronic hæmorrhagic purpura. Possibly the enlargement of the spleen in these two conditions as well as in certain other conditions is to some extent the result of work hypertrophy

Sufficient clinical experience is now at hand to demonstrate beyond peradventure that in a number of diseases which would otherwise prove fatal removal of the spleen will effect a cure

The statistics of early splenectomy show that the mortality was formerly from 25 to 35 per cent. The

number of cases not being large it is fair to assume that the high death rate led to delay of operation until the patient's condition grew so serious that splenectomy was certainly more than justified as a last resort

A vicious circle was thus established in which the high mortality brought about a delay responsible for a still higher mortality. Operative methods in the early history of splenectomy left much to be desired but better technique of which Balfour's method of splenectomy is a fine example has greatly reduced the surgical death rate

From April 1, 1904 to January 1, 1926 splenectomy was performed in the Mayo Clinic in the following 417 consecutive cases

Cause	H. total mortality		
	Cases	Cases	Per cent
Disease of the spleen due to infection and toxic agents	190	29	15.3
Abnormality of the white blood cells	50	2	4.0
Abnormality of the red blood cells	147	7	4.8
Splenic neoplasm	10	3	30.0
Surgical accident	10		
Indefinite and unclassified	10	1	10.0
<b>Total</b>	<b>417</b>	<b>42</b>	<b>10.3</b>

From this table it is seen that the average hospital mortality was slightly more than 10 per cent. All of the deaths that occurred in the hospital without regard to the cause or the time are included. If one adopted the thirty day rule that is considered that if death took place more than thirty days after operation without surgical complication it was not an operative death there would be a marked improvement in these statistics but unless an arbitrary method of classifying mortality is adopted the tendency is unconsciously perhaps to improve the statistics. Moynihan speaking of comparative statistics says "Statistics can be made to tell any thing even the truth. Certainly the method of computing the hospital mortality with the operative mortality at least gives the worse side of the picture"

A survey of the foregoing experience demonstrates clearly that the removal of the spleen is compensated for by the widespread tissues of the reticulo endothelial system of which physiologically the spleen is a none too important part. The diseases with which the spleen is concerned are complex and pathological processes are seldom primary in this organ. It often acts merely as an agent of destruction

From the surgical standpoint it may be said that if the patients are properly rehabilitated and on the up grade as the result of proper methods of preparation the mortality of splenectomy will be less than 5 per cent

Experience has shown that the spleen should never be removed for a chronic condition when the patient is on the down grade. The dangers of the operation are due largely to delay and an unfortunate choice of cases

Leotta N. A Contribution on the Surgery and Physiology of the Spleen. Changes in the Blood Picture and Basal Metabolism Caused by Splenectomy (Contributo alla chirurgia e fisiologia della milza alterazioni ematologiche e del metabolismo basale determinate dalla splenectomia) *Ann Ital di chir* 1925, IV 1144

Leotta reports the case of a 13 year-old boy who was subjected to splenectomy because of rupture of the spleen. The operation was followed immediately by a decrease in the red cells and hæmoglobin but at the end of a month this was completely compensated. There was also a leucocytosis chiefly a lymphocytosis, which reached its maximum in twenty days and then decreased slowly. At the end of eight months however, the number of leucocytes was still about 15,000. A slight temporary increase in the blood platelets and a slight increase in the resistance of the red cells were noted, but there was no change in the coagulation time. These changes showed a loss of splenic function and a disequilibrium between hæmatopoiesis and hæmatolysis but were of brief duration and sufficiently compensated. The child gained normally in weight and height in the eight months, and no anatomical changes occurred except slight enlargement of the lymph glands especially the cervical carotid and inguinal gland.

The basal metabolism showed a marked increase. The average basal metabolism in a boy of 13 years is from +38 to +40 while in the first four months after the operation in the case reported it was +57. It then decreased progressively to +36, +32, and +51, and remained at +51 at the end of the eighth month. In discussing the significance of the increase the author urges further research on the endocrine function of the spleen and particularly the relations of this organ to the thyroid.

AUDREY G. MORGAN, M.D.

#### MISCELLANEOUS

Patel and Labry. Large Closed Cysts of the Urachus (Contribution à l'étude des gros kystes fermés de l'ouraque) *Gynec et obst* 1935, XII 449

There are three principal types of malformation of the allantois: (1) an umbilico-vesical fistula, representing complete permeability of the canal; (2) a canal closed at the umbilical end but open into the

bladder causing a special form of diverticulum; (3) a urachus impermeable at both ends forming a true cyst of the urachus. The authors report a case of the last type.

The patient was a woman of 37 years who had always enjoyed excellent health. About three years before she came for treatment she had an attack of intense abdominal pain with vomiting which seemed to be an ordinary attack of indigestion. During the last year her abdomen had been enlarging and constipation had developed. There were no urinary disturbances except increasing frequency of micturition.

On examination a diagnosis of large cyst of the ovary was made but at operation the cyst was found to lie in the cellular tissue outside the peritoneum and to involve the urachus instead of the ovary. The uterus and adnexa were normal. The cyst was not continuous with the bladder but adherent to it and some difficulty was experienced in dissecting it free. The wall of the bladder was injured slightly but the mucous membrane was not opened. A few sutures were placed in the bladder wall and the cyst was removed entire. The peritoneum and abdominal wall were then closed and a retention catheter was left in for four or five days. Uneventful recovery resulted.

Closed cysts of the urachus are rare; the authors have found only ten cases in the literature verified by operation or autopsy. There are no pathognomonic signs. The most frequent erroneous diagnosis is cyst of the ovary. The condition usually causes general enlargement of the abdomen and sometimes causes pain. A cyst with a median position, an elongated spindle shape and adhesion to the umbilicus has been given as a pathognomonic sign but these characteristics are obliterated when the tumor becomes large. However operation is indicated even when an accurate diagnosis is impossible.

The cyst should be extirpated since when punctured it refills rapidly. An attempt should be made to perform an extraperitoneal operation as usually very intimate adhesions are found and dissection requires more time than it is worth. No harm is done if the adherent parietal peritoneum is partially excised. When the cyst is low, great care is necessary in its dissection from the bladder. Otherwise the operation is easy and without danger.

AUDREY G. MORGAN, M.D.

# GYNECOLOGY

## UTERUS

**Vanverts J** The Obstetrical Results of Shortening of the Round Ligaments (A propos des résultats obstétricaux du raccourcissement des ligaments ronds) *Bull Soc d obst et de gynéc de Par* 1925 xiv 695

The author has performed eighteen operations to shorten the round ligaments. In seven the ligaments were plicated intra abdominally in three they were fixed to the abdominal wall by the Dartigues method and in eight they were fixed to the posterior surface of the uterus by the method of Doleris and Webster. In all but two cases the operation was performed for mobile retroflexion and it was necessary to free the uterus from adhesions.

Fifteen of the patients were re examined after an interval of not less than several months. In all the corrected position of the uterus was maintained and the menstrual and intermenstrual pain attributed to the retroflexion had been relieved. In one the size of the uterus had been decreased.

Four of the patients subsequently passed through normal pregnancies. No time relation could be established between the operation and the occurrence of pregnancy but in the case of a patient who had previously aborted in the third month the course of pregnancy was probably influenced by the operation as this patient subsequently carried a twin pregnancy nearly to term.

When the uterus is fixed the Webster operation has the advantage of covering the raw surfaces produced by the breaking up of the adhesions. Although this operation causes considerable displacement of the adnexa it does not seem to interfere with pregnancy. **ALBERT F DE CROIX M D**

**Vogt E** Prolapse Operations and the Ability to Bear Children (Vorfalloperationen und Gebär-fähigkeit) *Ztschr f Geburtsh u Gynaek* 1925 lxxv 118

After presenting communications in which it is recommended under certain conditions to perform sterilization simultaneously with an operation for prolapse (Doederlein Reifferscheid) the author states that at the Mayer Clinic operations for prolapse are regarded as permissible even during the age of child bearing but simultaneous sterilization is not approved.

Operations recommended are anterior colporrhaphy with suture of the bladder and the vesicovaginal septum and colpoperineoplasty with suture of the levator ani muscle. In these procedures the position of the uterus is disregarded.

During the period from 1907 to 1923 ninety five women were observed who bore children after

an operation for prolapse. After the operation there is no interference with cohabitation conception or pregnancy. The first birth following the operation occurred on the average after two years.

In a review of the course of labor attention is attracted to the frequency of forceps deliveries. This is due to the fact that for the protection of the scar and the prevention of recurrence in occipital presentations the application of the forceps to the rotated head with simultaneous median incision of the scar is considered the best procedure. However the figures show also that natural delivery is not made more serious for the mother or the child. The puerperium of the women previously operated upon was normal. The best protection against recurrence is restoration of the perineum immediately after delivery. **BOCK (G)**

**Seymour H F** Endoscopy of the Uterus With a Description of a Hysteroscope *J Obst & Gynec Brit Emp* 1926 xxxiii 52

The instrument used by the author for endoscopy of the uterus is a straight brass tube 28 cm long with a 6 or 9 cm bore and a light at the distal end. There are three channels in the wall of the tube one for the rod which carries the light and two which are connected with an electric suction apparatus. The direction of the instrument during its use is indicated by an aluminum handle. The tube with a 6 mm bore is for the postclimacteric uterus and cases in which dilatation to over 10 mm is difficult while the tube with a 9 mm bore is for general use.

In the preparation of the patient for examination a glycerine tampon is placed against the cervix for two nights to aid in dilatation. The cervix is then slowly dilated to 11 mm and the hysteroscope carefully introduced. A swab on a sponge holder keeps the lamp clear of blood and is withdrawn when the instrument is almost to the fundus. It is re introduced only if the lamp becomes smeared. The suction apparatus is started before the introduction of the hysteroscope.

The endometrium is sectionally scrutinized by turning the hysteroscope about and partially with drawing and re inserting the lighted end.

The instrument and technique described have the advantage of simplicity and have proved of aid in diagnosis and the removal of satisfactory specimens. The author believes that they will be found of value also in treatment. **MAGNUS P URVES M D**

**Gron R S** Chancre of the Cervix with a Report of Two Cases *Am J Obst & Gynec* 1926 xi 378

The author reports two cases of chancre of the cervix especially from the standpoint of infection and diagnosis. One of these cases demonstrates the

infectiousness of gonorrhoea and syphilis before the appearance of symptoms. The patient had sexual intercourse with male No. 1 three days after he had sexual intercourse with a prostitute. Neither previously nor at that time did male No. 1 have any symptoms or signs of venereal disease. Two days later the patient had intercourse with male No. 2. Male No. 1 developed a urethral discharge and eventually a hard chancre. The patient also contracted both gonorrhoea and syphilis; the latter manifested by a lesion in the cervix but transmitted only gonorrhoea to male No. 2. The author believes that the patient and male No. 1 had abrasions of the mucous membrane sufficient to permit the entrance of the spirochæte.

Cron describes the characteristics of chancre of the cervix. This lesion must be differentiated from simple cervical erosions, chancroid, herpes simplex, tuberculous ulcer, gonorrhoeal macule and carcinoma. Simple erosion and carcinoma are the most difficult to differentiate.

The author's conclusions are the following:

1. The primary lesion of syphilis is frequently found in the cervix. Its apparent rarity is due to the fact that it is frequently overlooked and rapidly undergoes involution.

2. Routine visual examination of the cervix especially in freshly infected syphilitic women would demonstrate a higher percentage of primary lesions.

3. The spirochæta pallida may be transmitted by conjugal relations in the absence of a macroscopically visible lesion in the transmitter.

4. A negative blood Wassermann reaction during the primary stage does not rule out syphilis.

5. The characteristics of the primary lesion on the cervix may vary so widely that a diagnosis can be established only by demonstrating the spirochæta pallida with the dark field microscope or by microscopic examination of tissue excised from the lesion and positively, only by the demonstration of the spirochæta pallida in the characteristic tissue lesion.

Mosher, G. C. The Incompatibility of Pregnancy and Fibroids of the Uterus. *Am J Obs & Gynec.*, 1926, xi 334.

Weiss, E. A. The Treatment of Fibroids of the Uterus. *Am J Obst & Gynec.* 1926, xi 343.

Mosher states that pathological changes in a myoma or fibromyoma associated with pregnancy are indicated by pain, hæmorrhage, signs of degeneration, a rise in the temperature or a high leucocytosis.

If the tumor is situated at the brim of the pelvis so that it will cause dystocia, myomectomy or hysterectomy must be considered. Abortion is contra-indicated on account of the increased risk of hæmorrhage, traumatic injury and septic infection. Mosher believes that the cesarean section operation is done in many instances without a proper indication.

The great majority of cases of fibroids associated with pregnancy run a favorable course after the danger of postpartum hæmorrhage is past. The tumor may disappear or become so small that it is no longer palpable.

Each case must be treated according to its particular requirements. The results depend upon the judgment and skill of the obstetrician. Mosher reports seven cases.

Weiss states that his attitude is decidedly conservative in uncomplicated cases of fibroids but that when complications are present he favors operation. When the preservation of the maternal and ex function is desirable, removal of the fibroid by myomectomy or resection is best. The cases most favorably affected by irradiation are those of the bleeding variety. Patients with diabetes, tuberculosis or cardiovascular disease are usually treated best with radium. In every case for which radium treatment is considered, curettage should be done as a diagnostic measure before the introduction of the radium. In the cases of patients less than 40 years of age, great care is necessary in the use of radium in order to avoid causing a premature menopause. In many cases of fibroid, operation may be safely deferred until definite indications arise.

During the past five years Weiss has obtained very satisfactory results in a fair percentage of cases treated with radium, but he still adheres to the general principle that when there is any doubt operation is the procedure of choice.

In the discussion of these reports Weiss stated that in cases of pregnancy an X-ray examination with pneumoperitoneum before the fifth month will outline the nodules of a fibroid tumor. The obstetrician can then determine whether any of the nodules will obstruct labor. After the fifth month, the X-ray will show the outlines of the fetus in the fibroid.

In cases in which cesarean section is necessary, Weiss is not in favor of performing hysterectomy at the same time unless degenerative changes are present.

Mussey reported that approximately 2 per cent of the women who come to the Mayo Clinic for treatment of fibroid tumors are pregnant. By conservative treatment under careful observation, practically all of these patients can be carried through to term. Most of them are delivered spontaneously or with the use of low forceps or midforceps. Cesarean section is necessary in only a very few cases.

Polak reported that in more than thirty years of obstetrical work he was only once obliged to perform an abdominal operation for obstruction of labor due to an incarcerated fibroid. Of late he has been performing partial resection of the uterus much more frequently than hysterectomy.

Schmitz stated that in the large gynecological clinics there should be at least one member of the staff who is thoroughly trained in radiation therapy, and that all radiation therapy should be under his supervision. To refer patients with gynecological



conditions to the radiologist is a mistake as the radiologist does not know how to treat them gynecologically and the gynecologist cannot tell the radiologist how to treat them radiologically.

ROZNY reported that he has never seen a case of placenta praevia in a pregnant woman with uterine fibroid. He believes that the only indication for operation for fibroid tumors during pregnancy is pain that cannot be controlled by large doses of morphine.

L. I. CORNELL M.D.

#### ADNEXAL AND PERIUTERINE CONDITIONS

Daniel C. A Study of the Interstitial Portion of the Normal Fallopian Tube (*Étude sur la trompe interstitielle normale*) *Gynec et obst* 1926 xiii 1

The study reported in this article was made on thirteen uteri four of which were infantile and the rest adult. It was found that the interstitial portion of the tube is a separate entity in the adult uterus but up to puberty is more nearly like the uterine cornu. The configuration of the lumen in this portion is less definite than that of the outer portion with its four large longitudinal plicae and varies in complexity with age. In the senile uterus it is flat. In half of the specimens a 0.5 mm. catheter could be passed.

As the epithelium approaches the uterine ostium it becomes more uterine in type and near the uterus there is a thin internal longitudinal muscle layer not present in the rest of the tube. The entire muscle here shows a greater connective tissue content. Also toward the uterine end especially in infants there may be gland like conformations of the plicae and a small amount of cellular tissue resembling uterine stroma.

In the normal state the tube is closed and a pressure of from 60 to 100 mm. Hg is necessary to demonstrate its permeability. During menstruation its mucosa shares in the hyperemia of the neighboring endometrium and it becomes closed as it does also early in the course of pregnancy. The similarity of

the structure of this mucosa to that of the uterus explains how placentation is possible in this portion of the tube when the tubal mucosa does not share in the formation of the fetal envelope.

The author suggests that the interstitial portion of the tube might be used for the medical treatment or surgical drainage of conditions in the outer part of the tube just as it is now used for inflation in sterility and the production of pneumoperitoneum.

GOODRICH C. SCHAUFFLER M.D.

#### MISCELLANEOUS

Fogelson S. J. The Non Specific Antigenic Effect of Spermatozoa upon Fertility *Surg Gynec & Obst* 1926 xlii 374

Fogelson performed experiments on rats to determine if possible a serological explanation for the type of sterility occurring in the human being which has no apparent anatomical or physiological basis. In confirmation of the work of others he found that conception can be temporarily inhibited by sensitizing the female rat to any spermatozoa protein. This antigenic effect is not specific for species equally good results can be obtained from the spermatozoa of any species.

The mechanism causing the sterility is still not clear only precipitins being definitely present and their significance an unknown factor. The role of agglutinins may be considered negative since as marked clumping was seen in the sera of non sensitized animals especially after inactivation as in specific sera. Lysins were never seen and toxins which fixed or rendered the spermatozoa immobile were so variable that no opinion regarding them is justifiable from these experiments.

The results cast no light upon the etiology of so called idiopathic human sterility but tend to eliminate protein sensitization as a causative factor and suggest the possibility of devising a contraceptive technique with a definite scientific basis.

HARRY W. FINK M.D.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

**Mahnert A** Studies of the Effect of Iodothyreo globulin on Diuresis and Metabolism in Pregnancy (Studien ueber die Wirkung von Jodthvreo globulin auf die Diuresis und den Stoffwechsel bei Schwangeren) *Arch f Gynaek* 1925 cxxvi 15

Mahnert investigated the effect of thyroid treatment in various types of oedema in normal and diseased pregnant women by studying the metabolism following the intravenous injection of iodothyreoglobulin. In only a certain percentage of the normal women were metabolism and diuresis increased by the iodothyreoglobulin. The reason why a few isolated cases were refractory could not be ascertained.

Pathological cases behaved similarly. In most of the cases the metabolism was increased to the extent that ureic acid, urea and sodium chloride were excreted in increased amounts. Moreover there was an increase in the cholesterol content of the serum with a simultaneous decrease in the albumin content followed later by a decrease in the cholesterol content.

The author compares the disturbances of metabolism and water balance brought about in pregnancy by the injection of iodothyreoglobulin with the symptoms of hypothyreosis occurring in the non-pregnant state and agrees with the theory first advanced by Knaus that the function of the thyroid is decreased during pregnancy. This accounts for the good effect of thyroid medication as well as of iodothyreoglobulin injections in such cases and for the fact that evidences of hyperthyroidism are never noted subsequently. In the cases in which the thyroid treatment seems to have no effect it may be slow in its action or the efficacy of the thyroid preparation may be diminished by the acidosis occurring in pregnancy. The activity of the hormone depends upon the degree of acidity of its environment.

In conclusion attention is called to the similarity of the sequelae following the administration of thyroid substance and those following the loss of weight at the end of pregnancy. The latter are attributed to increased function of the organs of internal secretion especially the thyroid of the child.

WERNER (G)

**Dujol G and Clement R** Spontaneous Rupture During Pregnancy of a Uterus Previously Subjected to Caesarean Section (La rupture spontanée pendant la grossesse de l'utérus antérieurement césarié) *Rev franç de gynéc et d'obst* 1925 cx 59

The authors have collected twenty six cases of spontaneous rupture of the uterus in patients who had been subjected to caesarean section.

Statistics of France, America, and England show that uterine rupture occurs after caesarean section in from 3 to 4 per cent of the cases, but these statistics include also ruptures occurring during labor.

The authors estimate the incidence of rupture before labor at 1.56 per cent. The symptoms are classical. A sudden sharp pain in the abdomen which may or may not cause syncope is followed by the less rapid appearance of the signs of intra-abdominal haemorrhage. Frequently there is vomiting. On palpation, the abdomen is tender particularly in the iliac fossa. The uterus is not well mapped out but the fetus seems to be felt under the skin and presents abnormal mobility. A few hours after the rupture abdominal meteorism is present. On auscultation no fetal heart is heard.

Sections of the ruptured scar show an intense vascularization with traces of an old infection. When the placenta has been inserted at the scar syncytial cells are found. The author reviews the theories as to the causes of weakness of the uterine scar.

Prophylactic treatment consists in watching patients who have been subjected to caesarean section and admitting them to the hospital before labor begins. If a conservative operation is possible, the Portes technique is indicated but in the attempt to be conservative care must be taken not to expose the patient to any unnecessary risks. When haste is necessary on account of the patient's poor condition the Porro operation is indicated. A supra-cervical hysterectomy may then be performed later.

SALVATORE DI PALMA M D

**Riddel J** Rupture of the Uterus During Pregnancy *J Obst & Gynec Brit Emp* 1916 cxxiii 1

Rupture of the pregnant uterus before labor is exceedingly rare. It may occur in diseased degenerated or previously injured uterus as the result of indirect violence. It may be caused also by interstitial pregnancy, a new growth, hydatidiform mole, weakness of a caesarean section or other scar or pregnancy in a rudimentary uterine horn. Traumatic rupture may be caused by sounds, curettes, bullets crushing or direct violence.

Rupture of the uterus is more common in women who have borne a number of children than in women pregnant for the first time because repeated pregnancies cause degeneration of the wall of the uterus. Infantalism is rarely an etiological factor as women with an infantile type of uterus are usually sterile.

Tears occurring before labor are usually found in the anterior or posterior wall or at the summit of the fundus. They may be longitudinal, transverse or oblique. They are usually linear but sometimes irregular. If contractions occur, the laceration enlarges allowing the escape of the fetus into the peri-

When the turning has been completed the lock of the forceps lies close to the perineum and holds in place. It is not necessary for an assistant to hold this blade while the other is being applied.

To apply the posterior blade two fingers are inserted into the vagina between the posterior cervical lip and the fetal head and with the other hand the posterior blade is inserted between the fetal head and the cervix under the control of the fingers. When the forceps are locked they lie in the anteroposterior diameter of the pelvis. Traction on the head is made in the direction of the handles slightly more downward than upward. As the hand goes deeper in the pelvis its rotation is spontaneous. If rotation has not taken place it can be accomplished with the forceps. Before extraction through the outlet is begun the sagittal suture should be perpendicular to the pelvic outlet.

ROLAND S. CROW, M.D.

**Ferrère M.** A Case of Serious Eclampsia During Labor. Fourteen Convulsions and Slight Loss of Consciousness. Injection of 12 Ctgms (18 Gr.) of Morphine (Upper Limit) in Ten Hours. Low Forceps Delivery After Episiotomy for Atresia of the Vulva. Delivery of a Living Infant Weighing 3,150 Gm. Cure of the Mother and Survival of the Infant (Éclampsie grave du travail avec 14 crises et atteinte légère de l'intellect. Injection de douze centigrammes de morphine—plafond morphinique—en dix heures. forceps à la vulve après épisiotomie latérale pour atresie vulvaire. fille vivante de 3 kilos. 1500. guérison de la mère et survie de l'enfant). *Bull. Soc. d'obst. et de gynéc. de Par.* 1925, xiv, 660.

Important in the treatment of eclampsia with morphine is an exact knowledge of the quantity of morphine which should be given to produce a cure. There is no advantage in giving more than that amount. When the convulsions continue in spite of massive doses it is well to know at what point the injections should be stopped. The maximum beneficial dose of morphine is 12 ctmgs but more can be given to an eclamptic without danger.

The effect of morphine on the nervous system is sometimes gradual. In the case reported by the author the occurrence of three convulsions after the final dose did not alter the originally favorable prognosis. Between the convulsions the patient recovered consciousness. Ordinarily no such recovery occurs after the first three or four convulsions.

The morphine was administered in divided doses 1½ ctmgs after each crisis.

ALBERT F. DE GROU, M.D.

### PUERPERIUM AND ITS COMPLICATIONS

**Wuesthoff H.** A Review of Puerperal Deaths in the Last Twenty Six Years (Kritik der puerperalen Todesfälle der letzten 26 Jahre). *Mónatsschr. f. Geburt u. Gynäk.* 1925, lxx, 189.

In the University Gynecological Clinic at Königsberg the total puerperal morbidity averaged 14 per cent including all cases in which the temperature

rose to 38 degrees C, even those in which this rise lasted only one day. In spite of the increase and eventual tripling of the number of births the annually calculated percentage fell from 26 per cent in 1906 to 13.5 per cent. The improvement is due to modern methods of disinfection, the more extensive use of rubber gloves even in simple vaginal examinations of pregnant women, increased knowledge of the nature of fever in pregnancy, early and careful delivery in cases with fever, exact knowledge of the indications for obstetrical operations and care with regard to the vaginal flora, particularly hemolytic streptococci.

In the cases reviewed there were sixty-three deaths, a puerperal mortality of 0.3 per cent. Nine teen of the women who died were known to have been infected before they entered the clinic. Of the forty-four others ten had an autogenous infection from an extragenital focus. In the thirty-four cases of hospital infection there was a mortality of 0.15 per cent and in twenty of this group of cases a more or less serious operative procedure was necessary for delivery.

HENRICH (G)

**Fobes J. H. and Fraser W. A.** The Treatment of Puerperal Infection. *Hahneman Month.* 1926, lv, 140.

For cases of puerperal infection the authors advocate the administration of ergot or pituitrin and drainage by elevation of the head of the bed and the semi-sitting position of Fowler. Intra-uterine douches and manipulations are of no avail because the bacteria are within the tissues and beyond the reach of chemicals or instruments. Efforts must be made to prevent a bacteremia by limiting the infection and securing a parametric exudate or localizing the pelvic peritonitis.

In parametritis body rest and tissue rest are indicated. If the exudate becomes purulent and an abscess forms the authors incise and drain. In cases of broad ligament abscess the best results have been obtained by opening the abdomen through a Pfannenstiel incision to locate the abscess, making a supplementary incision over the inguinal canal, passing a blunt hemostat through the inguinal ring down between the folds of the broad ligament to the abscess, sewing a rubber tube in place and then closing the Pfannenstiel incision and irrigating daily with Dakin's solution.

Mercurochrome, acriflavine, gentian violet, and milk injections have not proved of value. Infection is arrested most quickly by the development of a hyperleucocytosis. This result is best obtained by the transfusion of normal or immunized whole blood.

In the authors' clinic the transfusion of whole blood is preferred because of its simplicity, its absolute safety, and its definite effects in restoring the bulk of the circulating blood, providing oxygen and nourishment for the tissues, stimulating the hematopoietic organs and supplying hemoglobin, erythrocytes and leucocytes.

Blood transfusions should be given early instead of as a last resort. They should also be given frequently, but the quantity of blood transfused at one time should not exceed 300 c cm.

ROLAND S. CRON, M.D.

### NEWBORN

**Dickey, L. B.** A Study of an Epidemic of Impetigo in Newborn Infants. *Arch. Pediat.*, 1926, xliii, 145.

In eighteen cases of impetigo occurring chiefly in newborn infants in obstetrical nurseries, cultures from the blebs showed streptococcus faecalis, staphylococcus aureus, and staphylococcus albus. The period of incubation is supposed to be less than three days. In some of the cases, the lesions developed in one day. Many solutions and utensils were found contaminated with organisms of the same type. Oils in particular and stock boric acid solution are dangerous, as they are often contaminated and allow free growth of the organisms. Boric acid solution is more dangerous than valuable. Oils should be kept in sterile containers and re-sterilized after use. Tap water was found infected, probably from nozzles, etc. Soap also may carry the bacteria.

The primary case may have been in an infant in the children's ward nursery. The infection may have been carried to the obstetrical nurseries by internes,

staff doctors, nurses, or others. After it was established in the nurseries, it was probably transmitted from patient to patient through the medium of the nurses' hands, solutions, and articles in common use. It is important that both internes and nurses should have had careful training in asepsis before they work in nurseries.

At the outbreak of an epidemic, all of the babies in the ward should be inspected from head to foot. Those showing any signs of the disease should be kept in the original ward, and the remainder, who have been exposed, should be placed in another room. New arrivals after that date should be kept either with their mothers or in a third room. There must be no possible contact with either infected cases, suspects, or the nurses who have had charge of cases. As members of the exposed group develop the disease, they should be transferred to the original infected nursery. Obstetrical wards where babies are brought to nurse should be guarded from contamination. There should be prompt isolation of all other infections, especially frank pus cases.

In the treatment, bichloride of mercury and alcohol baths are of value, but not sufficient in themselves. Opening and cauterization of the blebs with silver nitrate and the use of the ordinary antiseptic solutions is satisfactory.

GOODRICH C. SCHAUFFLER, M.D.

# GENITO-URINARY SURGERY

## ADRENAL, KIDNEY, AND URETER

**Chute A L** A Study of Some Cases of Hypernephroma *Boston M & S J* 1926 cxciv 471

Chute reports the results obtained in forty three cases of hypernephroma thirty one of which were operated upon by him and six by other surgeons Six were not operated upon All of the patients who were not operated upon died and five of those treated surgically died of shock In five cases only an exploration was done removal of the kidney being contra indicated because metastases were present or the organ was fixed Ten patients subjected to operation were living from two to nineteen years later

The chief symptoms of hypernephroma are hæmaturia pain and a mass in one loin Hæmaturia was present in thirty three of the cases operated upon pain in twenty seven and a mass in twenty seven The hæmaturia may be painless and very scanty Slight pain may be caused by distention of the capsule and more acute pain by hæmorrhage with distention of the pelvis

An early diagnosis is most important The patient must be examined at the time of the bleeding The findings of an examination made during the quiet period are not conclusive The X ray examination must include the kidney outline An irregular contour bulging at the center and a knob at one pole are suggestive The pyelogram usually shows an abnormal pelvis As the majority of the forty three cases reported by the author were examined late the mortality was high

Chute exposes the kidney through an anterior incision through the outer border of the rectus This permits exploration of the peritoneal cavity for metastases gives more room at the pedicle than the usual incision and facilitates the recognition of anomalous vessels Drainage may be established through the loin or through the abdominal wound

CLAUDE D PICKRELL M D

**Cirillo G** Bacteriological Studies of Cases of Perirenal Suppuration (Recherches bactériologiques sur quelques cas de suppuration pérenale) *J d urol méd et chir* 1925 xx 462

From a bacteriological study of five cases of acute suppurative perinephritis the author concludes that as a rule this condition is caused by bacteria whose usual habitat is the intestine but that like appendicitis it may be caused by different species of bacteria sometimes alone and sometimes associated with other species In the majority of cases the infection is polymicrobial Anaerobes play an important part Among them the bacillus perfringens and the micrococcus fecidis are the most important probably because in comparison with other species they

are capable of adapting themselves more readily to the new conditions in the perirenal tissues

AUDREY G MORGAN M D

**Mercier O** The Pathogenesis and Treatment of Slight Idiopathic Hydronephrosis (A propos de la pathogénie et du traitement des petites hydronéphroses dites sans cause apparente) *J d urol méd et chir* 1925 xi 467

The author reports twelve cases of idiopathic hydronephrosis and includes in his article three roentgenograms The great majority of such hydronephroses are caused by adhesive bands producing fixation of the renal pelvis and the juxtapelvic part of the ureter and associated with slight ptosis of the kidney For some unknown reason the position of the kidney is lowered 1 or 2 cm The part of the ureter nearest the pelvis being fixed by the bands the pelvis becomes either horizontal or oblique from within outward and from above downward and its outlet is upward Because of this abnormal position the force of the contractions must be increased for normal emptying This effort finally decreases the contractile capacity of the kidney so that the urine tends to accumulate in the depression

Surgical treatment should be conservative Nephrectomy is contra indicated because there is only slight distention of the pelvis the function of the kidney parenchyma is intact and the condition is frequently bilateral Pyeloplasty and anastomosis between the ureter and pelvis are not very effective To relieve the intense pain that is often present Papin has proposed resection of the nerve tracts supplying the kidney Complete section of the nerves will stop the pain but is a delicate operation involving danger to the blood vessels if there are pelvic adhesions and as yet has not been performed for a sufficiently long period of time for its effects on the kidney and pelvis to be known In animals it seems to cause atony of the pelvis On the other hand high nephropexy with liberation of the ureter is simple and effective and a logical operation since it establishes a normal position of the pelvis with relation to the ureter

In all of the cases reported by Mercier recovery was complete and permanent

AUDREY G MORGAN M D

**Laquière M** Serous Cysts of the Kidney and Conservative Operation (Kystes séreux du rein et opérations conservatrices) *J de chir* 1925 xxvi 257

The author gives the histories of five cases of cysts of the kidney This is a rare condition as only 119 other cases have been reported in the literature Brief notes of the other cases are given

Serous cysts of the kidney have no pathognomonic signs and are generally first diagnosed at operation. The pain varies in type and has no special characteristics which differentiate it from the pain of conditions such as nephritic, hepatic, and gastric colic, appendicitis and salpingitis. If a tumor is palpated, it may be in various situations if the kidney is mobile, and even if it is at the normal site of the kidney its nature cannot be determined. The urine is generally normal.

The usual treatment has been resection but in the author's opinion this operation is contra-indicated as the parenchyma is generally normal. It should be done only when the kidney is diseased. For all other cases the best operation is collar resection. This is an easy operation with no mortality, while the mortality of nephrectomy is about 30 per cent.

Collar resection consists in puncturing the cyst and aspirating the liquid, opening the cyst, and making a circular section in its wall along the line where it emerges from the parenchyma of the organ. In this way a collar of the cyst is removed and the part which is intimately connected with the kidney parenchyma is left. It lines the depression where the cyst was lodged. No attempt should be made to remove it, at most, it should be curetted and cauterized. Some surgeons dislike to leave a part of the cyst, but there is not the slightest danger in doing so as the cysts never recur or degenerate.

AUDREY G. MORGAN, M.D.

**Condamin. Violation of the Results of Nephrectomy for Unilateral Tuberculosis by Tuberculous Lesions Outside the Kidneys** (Des tares aporées aux résultats de la néphrectomie pour tuberculose unilatérale par des localisations tuberculeuses extra-rénales). *J. d'urologie méd. et chir.*, 1926, xxi, 31.

The mortality from tuberculosis of the kidney is still high if the late results are considered. The high late mortality is generally explained by the development of a tuberculous lesion that was already present at the time of the operation. This is suggested by the fact that the figure diminishes with the lapse of time after the operation, being 31 per cent at the end of three years and 14 per cent at the end of seven years.

The author has collected 172 cases of unilateral tuberculosis in which nephrectomy resulted in a permanent cure in 69 per cent. These were cases with no extrarenal lesion. In a group of fifty-three cases with extrarenal lesions, complete recovery resulted in only 47 per cent. Bone lesions have the least effect on the mortality of nephrectomy. In eighteen cases with bone lesions, a complete recovery resulted in 62 per cent. In twelve cases with genital lesions it was obtained in 59 per cent and in twenty-one cases with pulmonary lesions it resulted in 20 per cent. Therefore while genital tuberculosis has a marked effect on the late results of nephrectomy, the lesion most to be feared is a pulmonary lesion.

There are a few cases in which nephrectomy seems to benefit the pulmonary lesion, but these are rare.

Cases of renal tuberculosis may be divided into three groups. In the first group are those in which there was no lung complication before operation and in 4 or 5 per cent of which pulmonary disease develops afterward.

In the second group are those in which a few discrete lesions have been present but have disappeared or remained latent for a long time, and pulmonary tuberculosis develops after the operation in from 10 to 15 per cent.

In the third group are cases in which there is manifest tuberculosis at the time of operation and the decision as to operation is difficult. If the pulmonary lesions are clearly progressive with fever, night sweats, etc., operation should not be considered. If operation is performed because of intense pain from cystitis or the danger that a large suppurating kidney may break down, military tuberculosis of the lungs or meninges may develop. If the lesions are quiescent and not very extensive at the time of operation or if they are localized in one lung and caseation has not begun, operation may be performed if there are reasons for it such as those mentioned, but in such cases the mortality is between 40 and 50 per cent. In the third group of cases operation should be performed only if it is urgently indicated.

AUDREY G. MORGAN, M.D.

**Commengé and Pasteau. Deaths from Nephrectomy for Tuberculosis Based on the Constant** (Morts par néphrectomie pour tuberculose sur la constante). *J. d'urologie méd. et chir.*, 1925, xx, 492.

Commengé reports three cases of early death after nephrectomy for renal tuberculosis. His statistics cover sixty-two cases of primary nephrectomy for renal tuberculosis performed by the lumbar route with nine deaths from one to nine days after the operation. Except for one death from embolism on the twenty-third day that of a woman in very poor condition these were the only cases of very early death. Three deaths in four (75 per cent) were due to uræmia. This percentage is almost the same as that of Legueu and Chevassu for operative deaths and that of Israel and Boeckel for late deaths. As Rafin wrote in the "Encyclopedia of Urology," urinary insufficiency and anuria to which Pousson in 1900, attributed 41 per cent of the deaths, hardly enter into recent statistics at all.

The question as to whether the uræmia could have been prevented is discussed. It is possible that it might have been in Case 1 in which it was latent and the azotæmia and the constant had been lowered only by a very strict diet. Operation is very uncertain in such cases as the uræmia may recur on the slightest provocation but in Case 1 Commengé was surprised at the rapidity of its development.

Its evolution in Case 2 he could not understand. Before the operation the azotæmia in this case was 0.53 and the constant 0.100. The left kidney increased its urea concentration to 24.5 and yielded 1.47 gm. in two hours. Although the water function was excellent, the patient died at the end of fifty hours.

In Case 3 there was some uncertainty as to whether the urine labeled from the left kidney came from the left kidney or from the bladder but the azotemia was 0.20 and the constant 0.068. This was incompatible with a bilateral lesion and all of the clinical signs indicated a lesion on the right side. Nevertheless nephrectomy performed on the indications given by the constant was followed by death.

The constant has rendered Commence great service in more than ninety nephrectomies but he calls attention to the fact that the surgeon and urologist should be on their guard against drawing incorrect conclusions in the cases of patients subjected previously to a low nitrogen diet.

AUDREY G. MORGAN, M.D.

**Ibuka K. Function of the Autogenous Kidney Transplant.** *Am J U Sc 1926 clvi 407*

**Ibuka K. Function of the Homogenous Kidney Transplant.** *Am J U Sc 1926 clvi 420*

From the results of extensive animal experimentation the author concludes that the successful autogenous kidney transplant in the neck of the dog functions for months in a practically normal manner while coexisting with the normal kidney in the abdomen and maintains the animal in good health for a fairly long time after the excision of the other kidney.

When a kidney is transplanted to the neck it can there be studied with regard to certain renal functions as well as with regard to its own physiological activity. Analysis of the urine from the transplant and various functional tests made simultaneously with an investigation of the normal kidney in the abdomen or after the removal of the latter showed fairly normal kidney function. After ablation of the other kidney an apparently compensatory activity of the transplant was observed. It is evident that the nerve supply to the kidney and the ureter plays a minor and unessential part in renal function since the transplanted kidney functioned equally well in the new location and the renal pelvis and ureter even showed increased peristalsis. The ultimate failure of function of autogenous kidney transplants transplanted successfully to the neck and functioning there for a fairly long time seems to be caused by hydronephrosis and infection due mainly to mechanical insult in the new location.

Having established a given technique in his work on autogenous kidney transplants the author experimented also with homogenous transplantation. The surgical technique and postoperative treatment were the same as in the previous experiments. The function of the homogenous transplants in the neck in association with the kidneys of the recipient was observed. This was found to continue for a few days after the transplantation and to end in necrosis or softening of the transplant. Chemical and functional tests proved that the homogenous transplant functioned similarly to the autogenous transplant for a limited time but its function soon changed and finally ceased whereas the autogenous transplant re-

covered and assumed normal function at a time corresponding to that at which the homogenous transplant failed. Study of specimens of the homogenous transplant revealed that the transplanted kidneys were affected at first by nephritic changes of the parenchyma such as cloudy swelling and degeneration of the tubular elements and then by marked nephritic processes in the renal tissue showing profound degeneration of glomerular and tubular elements with extensive interstitial infiltration of leucocytes and small round cells.

The great difference in the length of survival and the functional behavior of the homogenous transplant as compared with the autogenous transplant in experiments performed in the same manner cannot be attributed simply to the surgical and mechanical factors of the operation. In the author's opinion it is due probably to some as yet not understood underlying biological factor in homogenous transplantation.

JOHN G. CHEETHAM, M.D.

**Papin M. Anuria for Seven Days After Catheterization of the Ureters.** (*Anurie sécrétoire de sept jours après un cathétérisme des urètres*) *J d urol méd et chir 1925 xv 303*

In the case of a man 38 years of age a diagnosis of tuberculosis of the left kidney was made and the ureters were catheterized on June 29, 1925. The catheterization confirmed the diagnosis. The amount of urine collected during a period of two hours was normal but on withdrawal of the catheters urination stopped and in spite of medical treatment no urine was passed for a week. Signs of uræmia were noted but just as the author was preparing to perform a nephrostomy the patient passed 200 gm of urine and thereafter he urinated normally. On July 13 Ambard's constant was 0.109. On July 16 pyonephrosis of the left kidney developed suddenly and on July 20 Papin was obliged to perform a nephrectomy. The patient recovered and is now well.

In discussing this report CHIVASSU said that he has long contended that catheterization may irritate the ureters and kidney and considerably impair kidney function and that although it is valuable and necessary in some cases it should be performed only on strict indications.

PASTEAU and MICHON reported that they had never seen anuria following catheterization of the ureters. Michon stated that the patient should be kept in bed after the procedure and that if he had been treating Papin's case he would have tried another catheterization and lavage of the kidney pelvis to overcome the anuria. AUDREY G. MORGAN, M.D.

**Boehringer K. Ureteral Stone Non Operative Instrumental Removal.** (*Ueber Uretersteine unblutige instrumentelle Entfernung*) *Vierteljahrsschrift d. deutsch. Gesellschaft f. Urol 1925 p 91*

When a ureteral stone is not too large its removal or expulsion should be effected if possible through the natural pathway. As operation is not infrequently followed by recurrence or scar stricture

causing the development of hydronephrosis every effort should be made to avoid it.

In fifteen of thirty-two cases of ureteral stone seen at the Dresden Johannstadt Municipal Hospital the stone was removed by the natural passage. In twelve an operation was performed and in eight the procedure has not yet been decided upon.

In seventeen cases from one to three catheters were introduced simultaneously to stretch the ureter, catch the stone between the catheters and pull it out. In five cases this procedure resulted in the immediate removal of the stone and in three by its spontaneous descent several hours later. In nine cases operation was necessary.

Since the very strong contraction of the ureteral wall around and in front of the stone constitutes the chief obstacle to the descent of the stone, the author has devised a special dilating instrument. This consists in a 5-cm. director to be slipped past the stone and a dilator with four steel bands which can be dilated into a basket of about 30 Charniere circumference. The author has used the instrument twice up to the present time, once with immediate success and once with an uncertain result.

Since the conservative management requires great patience on the part of the patient, it has been found necessary to operate more frequently than the author desired. HOFFMANN (Z)

**Floris M.** Obliteration of the Ureter in Gynecological Practice and the Resulting Hydronephrosis (Sull'obliterazione dell'uretere in rapporto alla pratica ginecologica e sull'idronefrosi consecutiva). *Riv. ital. di ginec.* 1935, 11, 35.

The ureter is frequently injured in gynecological practice, particularly in Wertheim's panhysterectomy for cancer of the cervix. The author reviews the various methods of repair and concludes that the best method is implantation of the ureter into the bladder. This is possible, however, only when the ureter is sectioned close enough to the bladder so that the proximal segment can be implanted without too much stretching.

The next best method and one which is always practicable and quick is closure of the ureter. While this causes hydronephrosis and has been compared to its effect to nephrectomy, it brings about slowly and by a purely functional mechanism the result which nephrectomy accomplishes anatomically and at once and the effects on the organism of low compression of function of an organ are by no means the same as those of its sudden removal. Nephrectomy is absolutely contra-indicated unless the other kidney is normal and when a ureter is injured in the course of a gynecological operation the surgeon may not know whether the other kidney is intact or not.

If the other kidney is diseased, ligation of the ureter does not subject the patient to the same danger as nephrectomy. In fact it is known that renal function when suppressed by a hydronephrosis may be re-established even in excess when the stagnated urine begins to flow again. The development of a

permanent and irremediable injury of the kidney requires some time. When the lesion of the epithelium is not too far advanced there may be regeneration of the tubules. In experimental work the epithelium of the uniferous tubules presented no signs of degeneration a month after ligation, at most they showed simple atrophy from compression.

Various methods of occlusion may be used if they are practiced with due caution. The author prefers tying the ureter with a band of tendon or peritoneum from the lumbar region with penicization of the stump to prevent adhesions. It is evident, however, that the method must be adapted to the condition in the given case. AUDREY G. MORGAN, M.D.

## BLADDER URETHRA, AND PENIS

**Rejsek J.** An Unusual Case of Rupture of the Bladder During Cystoradiography (Un cas rare de rupture de la vessie au cours de cystoradiographie). *J. d'urolog. med. et chir.* 1935, 33, 382.

Rupture of the bladder is generally caused by external violence sustained when the bladder is full but when there is a pathological change in the bladder walls it may occur from internal pressure. Rejsek reports a case of the latter type in a 68-year old man with symptoms of intense cystitis. Cystoscopy performed because a calculus was suspected showed that the capacity of the bladder was only 120 c.c.m. and revealed hypertrophy of the trabeculae and intense acute inflammation of the mucous membrane. As no cause for the cystitis was found, a roentgenogram was made after the injection of 120 c.c.m. of 30 per cent sodium bromide and 2 per cent aluprin. The patient immediately experienced intense burning pain and a desire to urinate.

The roentgenogram showed the bladder surmounted by a crescent-shaped shadow, the concave side of which was connected by a pedicle with the bladder shadow. The lower concave surface was jagged while the upper convex outline was smooth. This shadow was due evidently to the perivesical subperitoneal extravasation of the contrast fluid.

The patient refused operation but the next day his condition was much less favorable and only 70 c.c.m. of urine could be obtained on catheterization. This finding and the signs of peritonitis and dullness on percussion in the hypogastrium showed that a continuous extravasation of urine was taking place into the subperitoneal space. A suprapubic incision was therefore made and the urine sponged out. There was no hemorrhage. The opening in the bladder wall could not be found. A Freyer tube was placed in the bladder and the perivesical space and the space of Retzius were drained. Partial suture of the aponeurosis and skin was then done. The patient recovered but died soon afterward of pneumonia.

Undoubtedly in such cases there is a pathological change in the bladder wall. Even slight overdistention on injection leads to contraction of the hypertrophied muscle and violent contractions cause an increase in the intravesical pressure and rupture of



the bladder as the result of the decrease in the elasticity of the wall. The roentgen picture in the author's case was interesting as the convex line of the crescent showed that the effusion of liquid was extraperitoneal. If the rupture had been intraperitoneal the effusion would have been diffuse and scarcely visible because of the small amount of fluid. In such a case it is not necessary to lose time looking for the opening in the bladder wall. suprapubic cystostomy is sufficient. AUDREY G. MORGAN, M.D.

**Bazy P.** Absence of a Shadow in Roentgenography for Vesical Calculi (Note sur l'absence d'ombre à la radiographie dans les calculs de la vessie). *J. d'Urol. méd. et chir.* 1925 xx 369.

In his operative notes for November 22, 1899, the author finds a note in regard to a case in which a lithotripter was introduced and a roentgenogram then taken. A stone was suggested rather than seen clearly between the blades of the lithotripter. As it is often difficult to see the shadow of a vesical calculus Bazy conceived the idea of studying the shadow seen between the blades of the lithotripter in such cases and applying the knowledge thus gained to other cases of possible vesical calculus.

He describes three cases in which roentgenograms were taken by competent roentgenologists and pronounced negative for stone in the bladder, but in which he could make out a very faint shadow and his diagnosis of stone was confirmed by operation. In one case the shadow he saw was the same in size as the distance between the blades of the lithotripter when it was introduced. Bazy admits how ever that he may have seen these shadows because he was convinced beforehand of the presence of a stone in the bladder. AUDREY G. MORGAN, M.D.

**Wallace W. J.** Unusual Bladder Obstruction. *J. Urol.* 1926 xv 325.

The author reviews the literature on obstruction of the neck of the bladder and reports an unusual case.

His patient was a laborer 64 years of age, the father of four grown children. He was admitted to the hospital complaining of frequency of urination, strangury and partial incontinence. His history was negative except that he stated that he had had some difficulty with urination all his life. During the last year the symptoms he complained of at the time of his admittance to the hospital had become steadily more severe. On account of his age and the nature of his symptoms he was prepared for a two stage prostaticectomy.

The cystotomy was done under local anæsthesia. When the second stage of the operation was undertaken three weeks later no intravesical bulging or enlargement was found. Instead there was what appeared to be the wall of a ruptured cyst which was believed to have been broken during the operation. The bladder was closed in the usual manner but when healing was complete the difficulty in urination returned. Sounds were passed into the bladder

readily but catheterization of the bladder was frequently necessary.

Cystoscopic examination at this time was unsatisfactory. It was necessary to depress the ocular end of the cystoscope in order to throw the light over the prominence causing the obstruction. A small mass was made out in relation to the left ureteral orifice. As profuse bleeding occurred during the cystoscopic examination a tentative diagnosis of multiple small vesical tumors was made and open exploration of the bladder was recommended.

Operation revealed no tumor but instead a thin fibrous partition or diaphragm extending along the interureteral ridge. This was a firm thin membrane about 1 in. in height extending from a point about  $\frac{1}{2}$  in. to the left of the internal sphincter backward just behind the left ureteral orifice and across on the interureteral ridge and terminating just short of the right ureteral orifice. This diaphragm divided the bladder into two portions each of which was capable of holding a considerable amount of urine. When the patient strained the partition came forward and practically occluded the internal urethral orifice. The septum was grasped with forceps and removed with the electric cautery. The patient made an uneventful recovery and since the operation has had no urinary difficulty at all.

The author has been unable to find any similar case reported in the literature. The condition differs from the hourglass bladder and the double bladder into each half of which a ureter empties.

CLAUDE D. HOLMES, M.D.

**Scheele K.** Granular Cystitis, Nodular and Cystic (Die Cystitis granulans, nodularis und cystica). *Verhandl. d. deutsch. Gesellschaft f. Urol.* 1925 p. 255.

The author discusses disease of the urinary bladder which is not tuberculous but forms nodules very similar to tubercles. The cystoscopic picture shows numerous nodules which may occur singly in the region of the trigone and ureters or are found closely pressed together or in groups scattered over the entire surface of the bladder. The mucosa in the immediate vicinity is often slightly reddened, a finding which may lead to confusion of the condition with tuberculosis. Beyond this reddened area however there is no macroscopic evidence of inflammation. Some of the nodules are grayish brown and transparent, others which are lighter colored and sometimes larger have a watery transparent content.

The nodules vary in their elevation, sometimes scarcely reaching above the level of the mucous membrane and sometimes being distinctly hemispherical. Occasionally the mucous membrane of the bladder, particularly in the trigone, shows a change toward smoothness so that the markings of the blood vessels are entirely lost and the membrane has an opaque grayish white appearance. The edges of this smooth area show reddening, marked injection of the blood vessels and not rarely a few nodules.

The author has named this syndrome cystitis granularis. He has found it most frequently asso-

ciated with a chronic cystitis which often had existed, with remissions, for ten years or longer and had been caused by gonorrhoea or a strong genital discharge or had developed as an obstetrical complication. In any event there had been formerly a severe infection of the bladder, but at the time of the granular cystitis this was no longer present in an acute stage. The patient complained of itching and stabbing pain in the bladder, tenesmus pain at the time of urination, and urgency of urination. In spite of this the urine was usually clear or only faintly cloudy.

Bacteriological examination revealed staphylococci or streptococci in fourteen of thirty three cases bacillus coli in eleven, and a mixed infection of bacillus coli and cocci in two. The histological appearance of excised nodules justifies the classification of the cases into those of cystitis nodularis and those of cystitis epithelialis. Cystitis epithelialis may be further divided into the so called "epithelial nest of von Brunn" cysts, glandular structures and leukoplakia. The conception of the pathologist that the infection and inflammation play an important role in the production of the lymph nodules as well as the epithelial nodules and cysts coincides with the author's clinical experience. In addition to inflammation of the bladder, chronic pus infections of the pelvis of the kidney and purulent infections of the genitalia play important roles. ROSENBERG (Z)

### GENITAL ORGANS

Shaw, E. C. Epidural Anaesthesia for Perineal Prostatectomy. An Experimental and Clinical Study with a Report of 100 Consecutive Cases. *J. Urol.* 1926, xv, 219.

The anatomical arrangement of the nerves supplying the prostate and contiguous structures is such that all may be blocked by a single injection of anæsthetizing solution through the sacral hiatus into the extradural space. Anaesthesia produced by such an injection has been termed by different surgeons 'epidural', 'extradural', 'caudal', and 'sacral' anaesthesia.

In the author's cases transsacral injections and local infiltration were not used.

Morphine was given alone as a preliminary sedative in seventy three cases and in combination with scopolamine in thirteen cases. Nine of the patients received no preliminary sedative. The injections were made with the patient in the ventral position. In ninety cases the anæsthetic was procaine, and in ten, novocain suprarenalin. Blood pressure determinations and pulse and respiration counts were made at five minute intervals from the time of the injection of the anæsthetic until the operation was completed. The blood pressure proved to be the best indicator of the patient's condition.

It was found that from 15 to 20 c m of the anæsthetic completely filled the extradural space in the sacral canal and yet did not extend upward to come into contact with nerves supplying areas not involved in the operation.

Among the 100 cases the anaesthesia was incomplete in 17 per cent. Whenever there was definite pain the induction of anaesthesia was classified as a failure even if the operation could be completed without the use of a general anæsthetic. General anaesthesia was induced in eleven cases.

The incidence of satisfactory anaesthesia was proportional not to the amount of procaine solution used but to the concentration of the solution. The best results were obtained with from 15 to 20 c m of 3 per cent procaine.

Extradural anaesthesia produces complete relaxation of the muscles of the perineum, thereby facilitating the operation. The postoperative complications are definitely less than those following any type of general anaesthesia. Postoperative pneumonia and uræmia did not occur. Cardiac decompensation occurred in only one case and in this instance it was mild and was followed by complete recovery.

Epidural anaesthesia should not be used for nervous unco-operative patients unless general anaesthesia is definitely contra-indicated. In the cases of old debilitated patients with impaired kidney function, extradural anaesthesia undoubtedly reduces the operative risk. The extradural block need not be supplemented by transsacral injection.

C TRAVERS STEPIA, M.D.

Keyes, E. L. An Operation for Incontinence of Urine Following Perineal Prostatectomy. *Surg., Gynec. & Obst.* 1926, xlii, 423.

Keyes reports a case of incontinence following perineal prostatectomy one year previously. The patient was a man 70 years of age. On October 16, 1923, the perineum was opened through the usual V shaped incision made in the line of the old scar and the rectum was separated from the urethra. The membranous urethra was opened by mistake but was sutured immediately. As no fibers of the external urethral sphincter could be found, the two levator ani muscles were sutured to the posterior part of the bulbocavernosus.

Seven weeks after the operation the patient remained dry all night. When he left the hospital on January 14, 1924 he was dry at night but was unable to control his urine by day except when he was sitting down. Eleven months after the operation he was obliged to empty his bladder twice at night but was able to hold the urine half a day. In June, 1925 he reported that he was entirely well, was not obliged to urinate at night, and remained perfectly dry.

ALTON OCHSNER, M.D.

Gayet, G. and Peycelon, R. Pyelonephritis After Prostatectomy (La pyélonéphrite chez les prostatectomisés). *J. d'ur. méd. et chir.*, 1925, xx, 371.

Ascending infection of the ureters and pelvis in prostatitis is common but little attention has been paid to the course of the lesions after radical operation and the effect of prostatectomy upon their evolution.

The authors report five cases which show that pyelonephritis is not overcome by prostatectomy and after the operation constitutes a danger against which precautions must be taken. In the majority of cases the pyelonephritis which becomes manifest after a prostatectomy is a continuation of a pyelonephritis that existed before but there are cases in which it develops after operation in patients who had clear urine before. Of course renal disease preceding prostatectomy also predisposes to this complication.

Pyelonephritis generally develops the third week after prostatectomy and begins when the hypogastric fistula is closed. There is often a slight rise in the temperature at this time. The free drainage of the bladder through the suprapubic fistula is replaced by less perfect drainage through the retention catheter and the slightest obstruction of the sound with reflux of urine causes an ascending infection.

Pyelonephritis after prostatectomy may be acute or chronic. The prognosis is rather grave. The diagnosis is easy. To prevent the development of the condition special care must be taken when the suprapubic fistula is closed. Vesical lavage should be practiced twice a day, a low pressure being used in order not to cause a reflux into the ureter. Traumatism and infection of the urethra must be avoided. A sound must not be introduced through the penis too soon and after its introduction care must be taken to see that it functions perfectly. If the fever and pyuria persist suprapubic drainage should be re-established. The best treatment for established pyelonephritis is the intravenous injection of urotropine combined with lavage of the pelvis with 1 per cent protargol. If the kidney increases in size and there is retention of pus, nephrotomy may be necessary. In serious cases this operation must not be too long delayed.

AUDREY C. MORGAN, M.D.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Harbin M Non Suppurative Osteomyelitis with  
the Report of an Unusual Case *J Bone &  
Joint Surg* 1926 viii 401

In the case reported that of a boy 14 years of age non suppurative sclerosing osteomyelitis of the os calcis followed trauma sustained a year previously when the patient stepped on a rusty nail. Weight bearing was very painful. There was no redness or suppuration. The affected heel was broader than its mate and moderately tender. Its surface temperature was slightly increased. Roentgenograms showed destruction throughout the epiphyseal portion of the affected heel, with increased density of the body and proliferation on the lateral aspect.

Operation revealed increased vascularity with slight irregularity, an increase in the size of the bone thickening and eburnation of the cortex and a decrease in the cancellous bone. There was no evidence of suppuration. The condition seemed to have some relationship to epiphysitis or osteochondritis.

DANIEL H LEVINTHAL M D

Codman E A Registry of Bone Sarcoma I  
Twenty Five Criteria for Establishing the Diag-  
nosis of Osteogenic Sarcoma II Thirteen  
Registered Cases of Five-Year Cures Ana-  
lyzed According to These Criteria *Surg Gynec  
& Obst* 1916 xlii, 381

One of the primary objects of the registry for bone sarcoma is the collection of cases of osteogenic sarcoma which have been cured for five years without recurrence and the recording of the methods of treatment in such cured cases.

In a period of five years there have been collected only seventeen primary, malignant bone tumors which may be considered cured.

Through the efforts of the Registry there is now a collection of 100 standard benign giant cell tumors, 100 standard osteogenic sarcomata of the femur, 100 osteogenic sarcomata of other bones and 50 standard cases of Ewing's tumor. In all, 650 cases have been studied.

In the seventeen cured cases of primary malignant bone tumor an amputation was done in all but one. In the one exception local exploration was followed by intense irradiation and the use of Coley's serum. In eight cases irradiation treatment was given. In seven the treatment consisted of amputation alone.

In nearly all cases of osteogenic sarcoma pain precedes the other symptom. Pathological fracture is rare whereas in cases of cysts, giant cell tumors and carcinoma it is common. A history extending over a period of years is unusual. Most patients seek

advice from one to twelve months after the onset of the condition.

The general health just before the onset is good. With the exception of cases in which the osteogenic sarcoma was coincident with Paget's disease there is no record of such a sarcoma in a patient over 50 years of age. The growth of the tumor is rapid and steady, being noticeable from month to month.

In the examination the soft tissues are not easily moved over the bony tumor. About one half of all osteogenic sarcomata occur in the femur and one fourth in the tibia. The phalanges, carpal, and smaller tarsal bones seem to be exempt. Signs of inflammation are absent or very mild. The neighboring joint is not involved. The tumor is usually large, and involves both sides of the cortex.

In the X ray picture medullary or subperiosteal involvement is seen. The old shaft remains in its normal position even if it is disintegrated, and is never expanded. The advancing outline of the tumor in spongy bone is irregular and rough. The process is both osteolytic and osteoblastic. The soft parts near the bony site of the tumor are usually invaded.

On microscopic examination mitotic figures are found to be numerous and hyperchromatism of nuclei and pleomorphism are prominent. Tumor giant cells and foreign body giant cells are often present, but their absence does not rule out malignancy. The differentiation between cellular and intercellular substance is not sharp. If complete differentiation is found the tumor is probably benign. Definite blood vessels with walls and branches like the twigs of a tree are characteristic of osteogenic sarcoma, whereas in benign giant cell tumors there are only capillaries or sinuses without any walls except the endothelium lining them.

As a rule the pathologist, roentgenologist, and surgeon agree in their independent diagnoses if the tumor is definitely malignant. If one of them is in doubt all of the others are also in doubt or should be. Much depends upon the amount of tissue sent to the pathologist and the completeness of the history and other clinical data.

Thirteen cases cured without recurrence after five years are tabulated. In three the tibia was involved and in ten the femur. An amputation was done in all except one. In five the amputation alone must be regarded as responsible for the cure.

WILLIAM A CLARK, M D

Cole W H Chondrodysplasia *Surg, Gynec & Obst*,  
1926 xlii 359

Ollier, who first reported chondrodysplasia, described it as irregular and retarded ossification at the epiphyseal cartilages, the cartilage persisting as nodules and masses which take a long time to become

transformed into bone. The condition is observed most clearly in the bones of the fingers and toes. The clinical picture is that of arrested development and growth with curving of the long bones, deformities of the hands and feet, and joint deformities consequent upon the bony changes.

Following a review of the literature, Cole reports a case of his own. The patient was a girl of 11 years whose right leg had been short from birth. None of the other members of her family showed a similar deformity. The patient had had the usual diseases of childhood. Examination revealed enlargements at both ends of the tibia and the lower end of the femur. The knee presented varus angulation, slight flexion and external rotation. The right leg was 20 cm shorter than the left. Roentgenograms showed a short thick femur with enlargement at the mid shaft and at the lower end. In the enlarged portions nothing and irregular vacuoles were evident. The same sort of enlargements were found at each end of the tibia and in the first and second toe bones and their metatarsals.

A biopsy was done on the upper tibial tumor. Grossly the mass was cartilaginous with a thin bony shell. Sections showed cartilage with small bony islands. As no treatment was indicated an extension shoe was prescribed.

In conclusion Cole states that the term Ollier's disease should be confined to cases of cartilaginous dystrophy with or without tumor in which asymmetrical involvement of the body is the outstanding clinical feature. Chondrodysplasia also is usually asymmetrical but as several symmetrical cases are on record the term chondrodysplasia is of broader application than Ollier's disease.

WILLIAM A. CLARK, M.D.

Cumberbatch E. P. and Robinson C. A. Non Infective Arthritis in Women. *Brit M J* 1926 1 612

The authors report investigations carried out from the standpoint that the elucidation of certain obscure conditions may be facilitated by considering the results of treatment. They discovered that the process producing arthritis may sometimes be brought to an end by heating the pelvic organs by diathermy. The local application was first found effective in gonococcal arthritis but later proved beneficial also in other types of arthritis. In the cases of gonococcal infection it was found unnecessary to apply the current to the joints if it was applied to the foci from which the dissemination occurred—the cervix uteri in women and the prostate and seminal vesicles in men. With regard to the other cases it was assumed that the effect of the current upon the arthritis was due to its action upon the cervix or the prostate infected by other organisms. However in one series of cases in which it seemed clear that no infection was present—those of women in whom the arthritis developed at the time of the establishment of menstruation or at about the age of the menopause—the arthritis appeared to

be due to the lack or deficiency of the hormones of the ovary or some other pelvic organ.

In the cases of virgins the diathermy was applied by a rectal electrode and in the cases of married women through the vagina.

Two cases are reported one of arthritis occurring when menstruation began and the other of arthritis at the time of the menopause. In both of these cases diathermy proved beneficial and seemed to aid in the establishment of normal physiological processes.

ROBERT C. LONERGAN, M.D.

Syme W. S. and Cappell D. F. A Case of Chordoma of the Cervical Vertebrae with Involvement of the Pharynx. *J Laryngol & Otol* 1926 xli 209

The recognition of tumors derived from notochordal remnants dates from the classical research of Müller, Luschka, and Virchow. Müller was able to show that notochordal remnants frequently persist in the sphenoccipital and sacrococcygeal regions. About fifty-six cases have been reported. Such growths occur most frequently in the sphenoccipital and sacrococcygeal regions.

The authors report the case of a man 59 years old who entered the hospital with a history of shooting pains in the neck of two months duration followed by increasing stiffness and difficulty in swallowing. Breathing and speech were affected.

Physical examination disclosed an extensive smooth swelling in the posterior pharyngeal wall which was more prominent on the left side than the right. At operation the growth was found limited anteriorly and laterally by a capsule. Posteriorly it had invaded the body and adjacent portions of the third cervical vertebra. It was resected as far as possible and a diathermy button applied.

Six months later a recurrence was operated upon. At this time the growth was ill defined and resection was more difficult. The patient died of septic pneumonia.

The first specimen had a curious semi-translucent rather gelatinous appearance and was composed of definite strands. The second specimen was similar and no more degenerated. At autopsy no evidence of metastatic growth was found.

The growth was typical of the class of tumor described as chordoma although it was rather more cellular and more malignant than the majority of such growths. The histological appearances were characteristic, and reproduced with considerable fidelity the various stages in the ontogeny of the notochord. There are solid cellular areas composed of clearly demarcated epithelial cells similar to the notochord in its second stage of development. Later the cells begin to become differentiated and exhibit the characteristic mucinous secretion of notochordal cells with here and there the formation of actual physaliphorous cells as the large highly vacuolated structures have been named. In other places secretion is poured freely into the intercellular spaces and the appearance of the notochord at a more advanced

stage is reproduced in an exaggerated degree. Finally, just as when the notochord becomes enclosed in the centers of the intervertebral disks to give rise to the nucleus pulposus the cells become modified to irregular syncytial strands with many large vacuoles which contain a substance of unknown nature.

The presence of very definite sheaths round the smallest invasive elements of the tumor is a striking example of reversion of the tumor cells to a stage far back not merely in the ontogeny of the individual but also in the phylogeny of the vertebrates. In the human subject, the notochord does not undergo the more elaborate differentiation which occurs in some of the lower vertebrates and the primary and secondary sheaths are at best only very poorly developed. These sheaths are present in certain lower mammals, e.g. the pig and the mouse, but the greatest development of these structures occurs in exceedingly low vertebrates such as lepidosiren and acanthias.

The tumors thus appear to reproduce in a very interesting fashion the character of notochordal cells both in architectural arrangement and cytological structure.

ROBERT C LONGERGAN, M.D.

Rollier A. Pott's Disease. *J Bone & Joint Surg.*, 1926  
viii 360

Probably the most famous institution of heliotherapy is that at Leysin, Switzerland, under the direction of Rollier. In this article Rollier reports his observations upon the successful results of heliotherapy in Pott's disease.

In addition to the sun treatment immobilization in the horizontal position is maintained until a complete cure of the diseased vertebrae is demonstrated by roentgenograms. Ambulatory treatment is not considered. The horizontal position gives the necessary rest to the spinal column and, by removing the harmful influence of the body weight, prevents further ulceration due to compression or deviation of the vertebrae. To obtain the desirable hyperextension of the diseased segment the patient is immobilized by turn in the dorsal and ventral positions.

In the dorsal position the patient with spondylitis is placed upon a hard mattress if he has well developed musculature and no deformity of the spinal column. If he is in poor condition millet seed cushions of uniform consistency are arranged between his body and the mattress. In the cases of children and restless adults a canvas jacket is applied with straps to keep the patient from turning or sitting up in bed. In cases of gibbus formation the spine is hyperextended and millet seed cushions of gradually increasing thickness are placed underneath the kyphosis. The cushions are later replaced by a block of wood which conforms to the shape of the gibbus.

When the pain has ceased the patient is turned to the ventral position and a wedge shaped cushion is placed under the chest. In some cases the shoulders are supported by a canvas strap fastened to the foot of the bed. In this position the back muscles are

developed by movements. In cases of cervical spondylitis the head is held in a celluloid cup modeled on a plaster cast of the back of the head. This cup is fitted with wheeled supports running freely on rails which eliminate traction and permit any degree of extension.

When the disease involves more than one vertebra the patient is kept in the horizontal position until the X ray shows the formation of a solid cicatricial block with a strong bony structure. This may be obtained in from one to two years. The patient is then gradually permitted to assume the upright position with the aid of a supporting corset. The corset used for men is made of perforated celluloid and that for women of linen reinforced with steel rods. The author is opposed to plaster corsets.

When the cure is complete the patient is urged to continue the sun baths at home in order to prevent a recurrence of the disease.

ROBERT C LONGERGAN, M.D.

Berry J. M. A Theory as to the Cause of Perthes' Disease Based on Roentgenological Findings.  
*J Bone & Joint Surg.*, 1916 viii, 333

The theories as to the cause of Perthes' disease are narrowed down to three: (1) the infective, (2) the traumatic and (3) the congenital.

Thirteen cases are reported with roentgenograms. The author calls attention to the frequency with which bone changes characteristic of Perthes' disease follow the reduction of congenital dislocation of the hip and speculates as to the relationship between them. He believes the changes are satisfactorily explained by the theory of partially arrested development.

According to the theory of biogenesis, the embryo, in its development, tends to repeat the evolutionary history of its race. The limb structure of human embryos at the end of the second month and the position of the limb in relation to the trunk correspond to that found in adult reptilian development. It is probable, therefore, that partial arrest of growth at the reptilian stage results in an imperfectly formed shallow acetabulum and a small, malformed head of the femur, and that therefore when rotation of the limb takes place to make the erect attitude possible a dislocation of the head of the femur is very apt to occur.

A human hip joint partially arrested in development at the reptilian stage probably has an epiphysis of poor quality. It is easy to believe then that the trauma incident to the reduction of a congenital hip would affect the circulation and would be sufficient to produce the changes of Perthes' disease by causing the epiphyseal tissue to break down. The author reports one case with characteristic X ray evidence of the disease following traumatic dislocation of the hip in a boy of 9 years.

If trauma acting upon defective epiphyseal tissue causes these changes, it is logical to expect to find similar changes in defective epiphyseal tissue in other joints. Several such diseases have been ob-

served osteochondritis of the spine tarsal scaphoiditis osteochondritis of the second and third metatarsals and Osgood Schlatter's disease of the tibial tubercle. The author has observed also a case in which the X ray disclosed changes similar to those of Legg Calve Perthes disease in the epiphysis of the lower end of the radius and another in which it revealed such changes in the scapular bone of the wrist. In a third case similar bony changes were found in practically every joint in the body.

ROBERT C. LONGFORD M.D.

**Moller P. F.** The Clinical Observations After Healing of Calve Perthes Disease Compared with the Final Deformities Left by That Disease and the Bearing of Those Final Deformities on the Ultimate Prognosis. *Acta radiol.* 1926 v 1.

The author has collected seventy-four healed cases of Legg Calve Perthes disease, thirty-five of which were his own. In fifty-eight cases (78.4 per cent) the functional result was good, the only clinical defect being a very slight dragging of the leg in about one-half of the cases.

In sixteen cases (21.6 per cent) the disease caused considerable restriction of the movement at the hip and a permanent limp. Seven of the patients in this group have been able to go about freely and continue their usual occupations, but the nine others have continual pain in the hip which decreases their ability to work.

The author concludes that the deformities resulting from Legg Calve Perthes disease favor the development of arthritis deformans. He believes that this is true not only of the severe deformities but also of the so-called perfectly healed lesions and those which remain latent.

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

**Cotton F. J.** Disinfection of Septic Joints. *J. Bone & Joint Surg.* 1926 viii 395.

Since 1915 the author has advocated incision, irrigation and suture of septic joints. The technique is as follows:

Through a small incision about 1½ in. long extending into the synovial pouch a blunt taper pointed irrigator nozzle (like that of a urethral syringe) is inserted.

Under a head of about 18 inches normal salt solution with 1:15,000 corrosive sublimate is run into the joint until the sac is ballooned when the tip is withdrawn and the joint emptied. This is repeated for fifteen minutes.

The synovial capsule is then sutured with No. 0 or 1 catgut which is not exposed within the joint and the fibrous capsule is sutured with a water-tight lock stitch. The outer wound is left open. An alcohol dressing and a pillow splint are applied. Motion is begun on the tenth day.

A focus of infection within the joint will defeat the disinfection. DANIEL H. LEVINTHAL M.D.

**Latreille J.** Resection of the Lower End of the Humerus for a Gunshot Wound. Findings Eight Years After the Operation. (*Résultats diaphysaires épiphysaires pour traumatisme de guerre résultat éloigné datant de 8 ans*). *Rev. d'orthop.* 1925 xxxii 551.

The patient whose case is reported in this article was a soldier who eight years ago was subjected to subperiosteal resection of the humerus for a gunshot wound of the elbow. A recent examination by Latreille showed a slight prominence of the olecranon process but all movements were possible. The joint was not abnormally movable. The X ray demonstrated a tendency on the part of the bone to widen in order to form a new epiphysis. It revealed also the new trochlea and the condyle. The new bone was 7 cm. shorter than its fellow on the opposite side.

Latreille calls attention to the frequency and the relative completeness of bone regeneration when such resections are made subperiosteally according to the technique of Ollier. ANTHONY F. SAVA M.D.

**Lyle H. H. M.** Skin Plastics in the Treatment of Traumatic Lesions of the Hand and Forearm. *Ann. Surg.* 1926 lxxxiii 537.

For the restoration of function following injuries of the hand prompt healing is essential. Healing can be expedited by the use of suitable skin grafts. Skin plastics may be employed singly in combination in series and as primary and secondary closures. To obtain a primary permanent closure careful debridement must be done first and the raw surface immediately covered by a suitable flap. Ideal conditions such as a good blood supply and asepsis are necessary. In small defects the Thiersch graft can be used in large defects where deeper structures are exposed a pedunculated flap is necessary.

Secondary closure by a Thiersch graft is done in cases of extensive destruction of the skin and cases of burns and ulcerations. The object of the treatment is to sterilize the wound and provide an epidermal covering. It prevents excessive scar formation and decreases the possibility of future contractions.

Skin plastics in series are used when temporary closure is the prime requisite. A Thiersch graft is first applied and later when the wound is healed the grafts are removed and a pedunculated flap is substituted. FRANK G. MURPHY M.D.

**Mayer L.** Tendon Transplantations for Division of the Extensor Tendon of the Fingers. *J. Bone & Joint Surg.* 1926 viii 383.

Traumatic division of the extensor tendons in which primary suture is contra-indicated by infection or extensive trauma to adjacent tissues can be successfully treated by tendon transplantation performed under suitable operative conditions. Local anesthesia is used. The extensor communis digitorum tendon of the index finger is the most suitable for transplantation purposes.

The distal end of the severed tendon is exposed through a  $1\frac{1}{2}$  in curved incision. The tendon stump is freed from adhesions and grasped with a tendon forceps. A second incision about 3 in long is made over the course of the extensor tendons of the index finger and the extensor communis digitorum tendon to the index finger is severed at the proper level and freed for an adequate distance so that when it is brought to the injured finger it will be as nearly as possible in a straight line. A subcutaneous channel is bored from the first incision toward the wrist in the direction of the extensor communis digitorum tendon. The channel must be sufficiently wide. The paratenon is well preserved. The tendons are sutured by the end to end method or by the buttonhole overlapping method which is more secure.

After the operation the finger is immobilized in the extended position for eight days. The splint is then removed at intervals for gentle active motion. The motions are gradually increased both in range and strength. As a rule the range of motion is about 75 per cent of the normal within four weeks after the operation.

DANIEL H. LEVINTHAL, M.D.

#### Mackinnon A. P. Plaster Shells in the Treatment of Tuberculosis and Fracture of the Spine *Canadian M. Ass. J.* 1926 xvi, 399

Mackinnon reports his experience with the plaster shells which have been used for several years by the Massachusetts General Hospital and the Children's Hospital of Boston. The shells have proved satisfactory after fusion operations on the spine, in cases of recent fracture, and in cases of spinal tuberculosis not operated upon.

They extend from just below the head to the middle of the calf, and are made in two sections—a posterior and an anterior half. When the lesion is in the upper dorsal or cervical spine, the plaster is extended to form a head piece. The patient is first placed on a table in the prone position with pillows and sand bags arranged to give as much correction of the deformity as possible without causing pain. Next a layer of felt is cut and applied to the posterior half of the body in such a way as to conform to its contour closely. This is bandaged in place and, by two men it is covered with a plaster bandage applied both lengthwise and across and is molded closely to the figure.

The shell is reinforced by metal strips between the knees connecting the body and thigh portion and in the case of a head piece between the body and the head. When the plaster has set the bandages holding the felt are cut and the shell with the adhering felt is removed to dry. When the splint is dry, the patient is placed in the posterior shell and an anterior section is made similarly.

Probably the greatest advantage of this splint is that it permits moving the patient without causing discomfort when heliotherapy is to be given or dressings are to be changed following operations upon the back. With the patient in the posterior half, he may be easily turned after the anterior section has been

bandaged to its opponent. The posterior shell may then be removed.

The use of the splint in Pott's disease places the diseased part at rest, relieves it from weight bearing, and either prevents deformity or decreases it through the development of compensatory curves above and below the site of the lesion. It has been found efficacious in the postoperative management of cases in which the fusion operation of Hibbs or Albee has been performed. The author reports one case in which the shell was used with relief of pain and the re-establishment of the normal physiological curves following the manipulation of a recent fracture of the spine.

ROBERT C. LOVERGAN, M.D.

#### Moorhead J. J. Arthroscopy for Knee Joint Calcification *Ann. Surg.* 1916 lxxviii, 397

Cases of loose body in the knee are classed by Moorhead as acute, subacute, and chronic.

Acute cases comprise those of sudden mechanical injury followed by pain, swelling due to effusion, and disability. One attack predisposes to another, and the condition usually passes on to the subacute and chronic stage. In the initial injury the meniscus is probably fractured or partly detached and in subsequent injuries it is separated as a loose body.

In the acute cases examination usually reveals (1) fracture, dislocation of a meniscus, (2) a chip fracture from articular surface, (3) a subpatellar fat pad, (4) villous synovitis, and (5) bands or adhesions.

The subacute cases present the same pathological conditions and also synovial excrescences, exostoses, and enchondroma.

In the chronic group, a hypertrophic arthritis with irregularities of the joint is found in addition.

In the acute cases the treatment indicated is reduction of locking, aspiration of the joint effusion, and splinting. When the pain subsides the patient may be allowed to walk while still wearing the splint. Overbending or rotation of the knee should be forbidden for several months.

In the subacute cases stimulation of the weakened quadriceps by massage and radiant heat is important. Only rarely is operation indicated in the acute stage.

In the chronic cases it is often necessary to remove a torn cartilage. This is best done by the Jones method with the knee flexed at a right angle. Movement should be insisted upon every two hours, beginning immediately after the operation. After the removal of the sutures on the seventh day, the patient should begin to walk.

When there is doubt as to the exact nature of the condition the incision should be large enough to expose the entire joint surface. Either the vertical split patella (Jones) incision or the mediolateral incision will serve well. The latter is begun in the midline proximal to the patella and brought down to within 1 cm. of the upper margin and around the mesial border of the patella to the tibial tubercle. The patella and half of its tendon are then reflected



outward to the side of the condyle. After either of the incisions mentioned the knee must be flexed acutely for good exposure.

A tabular report of forty nine cases is given. Thirty six of the patients were males. The youngest patient was 9 years of age and the oldest 67 years. A lateral arthrotomy was done in twelve cases, a medial arthrotomy in twenty three and a mediolateral arthrotomy in fourteen. In all joint stability and flexibility have been improved and in none has there been any postoperative stiffness.

WILLIAM A CLARK M D

Ollerenshaw R. The Surgical Treatment of Dangle Foot. *Brit M J* 1926 1 525

The author has operated upon nineteen cases of dangle foot by the method described by Campbell.

Through an external incision such as that made for astraglectomy arthrodesis of the midtarsal and subastragaloid joints is effected and the bone chip are trimmed of cartilage and placed in saline solution. In young subjects the entire scaphoid is removed. Through a mid posterior incision the tendon of Achilles is next divided as for Z lengthening and the back of the tibia and the upper surface of the os calcis are exposed. A notch is then cut in the os calcis large enough to receive the broader end of the trimmed scaphoid. After the scaphoid has been placed in position the smaller pieces of bone are grouped above it and fixed in place by suturing the tendon of Achilles. The tendon is lengthened sufficiently to allow a right angled position of the ankle.

A plaster cast is applied for six weeks and at the end of that time is replaced for six months by a posterior iron brace preventing plantar flexion.

DANIEL H LEVINTHAL M D

## FRACTURES AND DISLOCATIONS

Thomson J E M. Leverage and Levers in the Reduction of Fractures. *Nebraska State M J* 1926 2 98

Thomson's technique for the reduction of fractures by leverage is as follows:

With the patient under anesthesia and on a fluoroscopic table a stab incision is made over the fracture and by means of a blunt lever of  $\frac{3}{4}$  in. round steel the fragments are approximated under the guidance of the fluoroscopic screen. When a good position is

obtained the lever is held in place and a cast applied around it. The protruding end may be cut off to prevent its being disturbed in the nursing of the patient. After about ten days when sufficient callus has formed to hold the fragments a window is cut in the cast and the lever pulled out.

Thomson claims that this procedure is a definite and certain method of reducing fractures and that the introduction of the lever is no more dangerous than the insertion of a large local anesthetic needle or of the chisel for osteotomy.

WILLIAM A CLARK M D

Ritter H H Lasher W W Wurtzel G L and Goldblatt D. Fractures About the Elbow Joint. A Review of 150 Cases. End Results in Fifty Two Cases. *J Am M Ass* 1926 lxxvi 680

This article is a review of 150 cases of fractures about the elbow and a report of the end results in fifty two cases.

The fractures were supracondylar in 41 per cent. In 26 per cent they occurred in the internal condyle, in 12 per cent in the external condyle, in 11 per cent in the end of the radius and in 4 per cent in the olecranon. Eighty two per cent of the patients were under 15 years of age. The musculospiral nerve was injured in three cases and the ulnar nerve in eleven.

The authors use the Jones method of reduction as a routine. The elbow is flexed until the radial pulse is obliterated and then released just enough to let the pulse come through. In order to insure restoration of the normal carrying angle the little finger should be on a sagittal plane with the greater tuberosity of the humerus. Anesthesia is necessary for the reduction unless the case is seen within a few hours after the injury. Flexion is maintained by a figure of 8 bandage. No cast is applied. After two days guarded motion is begun and after ten days the bandage is removed and only a sling is used.

The end results showed normal function and appearance in 86.4 per cent of the fifty two cases traced. Ashhurst obtained good results in 81 per cent and Cutler and Crue in 80 per cent.

Poor results were due to (1) the filling up of the coronoid and radial fossae with callus, (2) bone block, (3) failure to maintain the carrying angle or (4) myositis ossificans.

WILLIAM A CLARK M D

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD, TRANSFUSION

**Emile Well and Stieffel** A Case of Marked Hæmophilia in the Course of Lithiasic Icterus, Transfusions, Operation Followed by Recovery (Sur un cas de grande hémophilie au cours d'un ictère lithiasique, transfusions, opération et guérison) *Bull et mém Soc méd d hôp de Par* 19 6 xlii 55

The authors report the case of a 27 year old woman with infectious biliary lithiasis causing a febrile painful and intense jaundice, bleeding from the nose and gums, large ecchymoses on the thighs following subcutaneous injections, and numerous purpuric spots due to scratching. The patient's history and that of her family were negative as regards bleeding. The venous blood was unclotted and the yellow plasma still fluid after three days. The coagulation time was normal (two to four minutes) but the ear prick bled without stopping for one day. As in hæmophilia, the addition of one drop of fresh human serum to the patient's blood *in vitro* caused coagulation. The red cell count was 1,900,000 and the hæmoglobin value was 45 per cent.

Two hours after a 300 c cm transfusion, the blood clotted in fifteen minutes and the retraction of the clot was better. Three days later, the bleeding time was fourteen minutes and the coagulation time one hour and seventeen minutes. Six days later the red blood cells numbered 2,300,000 but the hæmoglobin was still 45 per cent. Nine days later, a second transfusion in which 350 c cm was given, caused a febrile reaction. The next day the bleeding time was four or five minutes.

The marked improvement in the blood lasted for only a few hours after each transfusion, but some permanent benefit resulted as the clotting time ultimately fell from three days to one hour, the red blood cells increased from 1,900,000 to 4,000,000, and the hæmoglobin increased from 45 to 60 per cent.

The infection and the fever gradually decreased. Following a third transfusion, in which 250 c cm was given, incision and drainage of the bile passages with the removal of twelve stones from the gall bladder and one large stone from the common duct was done. No hæmorrhage occurred. The patient made a rapid recovery, with the return of the blood to normal. After the operation the bleeding time was six minutes, clotting without retraction occurred in five minutes, the red blood cells numbered 4,800,000, the white blood cells numbered 8,000, and the hæmoglobin increased to 90 per cent. There was abundant drainage of bile. The jaundice cleared up, the stools became normal, and the patient's weight increased.

Although hæmorrhage occurs in acute hepatic insufficiency, the authors had never previously noted

a delay of coagulation for as long as three days except in the experimental hirudin blood of rabbits. The lithiasic icterus and the biliary infection in the case reported caused an acute symptomatic, not a permanent hæmophilia.

In another case, that of a patient with tuberculosis and fatty cirrhosis of the liver, the authors found a coagulation time of twelve hours.

WALTER C BURKET MD

## LYMPH VESSELS AND GLANDS

**Jacobson, J** The Treatment of Tuberculous Lymphadenitis by Cinnamic Benzyl Ether (L'éther benzyl cinnamique dans le traitement des adénites tuberculeuses) *Bull et mém Soc méd d hôp de Par* 1925 xli 1329

The favorable results obtained with cinnamic benzyl ether in the treatment of tuberculosis of the skin and mucous membranes led the author to use it in fourteen cases of tuberculous lymphadenitis. The technique was the same as that employed for lupus by Darier (*Comptes rendus de la Société de dermatologie* February 9 1922).

Except in the case of one patient who abandoned treatment after the first series of injections, a cure was obtained in an average of three months. In four cases, puncture or filiform drainage was necessary. The progress of the cure is indicated by a reduction in the periglandular induration. Ultimately the glands soften and discharge or resorption occurs. The final result is a small fibrous nodule.

Cases of varying degrees of severity were treated. In some of them the masses attained the size of a small orange. The patient who abandoned treatment showed considerable improvement after the first series of injections.

The treatment described is suggested as a valuable adjunct to radiotherapy and surgery. It facilitates surgery by reducing the peradenitis and mobilizing the glands. It exerts a favorable influence also on associated lesions wherever located. No general reactions have been observed following its use.

ALBERT F DE GROAT MD

**Rolleston Sir H, Woolbridge G H Fletcher H M Pugh L and Others** Hodgkin's Disease in Man and Animals *Proc Roy Soc Med Lond* 1926 xix Sect Med & Compar Med, 39

**ROLLESTON** The cause of Hodgkin's lympho granuloma is unknown. The histological picture described by Andrews and Reed is characteristic. The condition has been regarded as (1) a neoplasm (2) a transitional process between a neoplasm and an inflammatory formation, and (3) an infective granuloma due to an unknown virus.

Lymphadenoma occurs usually first in the cervical glands. It very rarely attacks the lymphoid tissue of the alimentary canal. There is no satisfactory evidence that Hodgkin's disease has ever been transmitted to animals. The differentiation between this condition and endothelioma is difficult. Early tuberculous adenitis without necrosis or caseation may simulate it.

WOOLBRIDGE Hodgkin's disease is rare in all species of animals except the dog. It appears to be an infective process rather than a neoplasm. The causal organism whatever it is has a low virulence. All lymphatic tissue except that in the bowel is enlarged. The course of the disease seldom exceeds two or three months. The characteristic histological picture in man has not been observed in dogs. There is no satisfactory treatment. The best results are obtained with arsenic and mercury.

FLETCHER Hodgkin's disease appears to be due to infection perhaps by a spirochete as it is accompanied by fever and responds to arsenic. Iritis

and purpura are occasional skin manifestations. The fever is usually very irregular and occasionally of the relapsing type. The results of X-ray and arsenical treatment are most striking but as yet no permanent cure has been obtained.

PUGH Hodgkin's disease is most frequently confused with one of the leukæmias, tuberculosis or malignant disease. No case in an animal has resembled the condition in man as described by Andrewes and Keed.

STEWART Attempts to cause Hodgkin's disease in monkeys have failed. In the later stages the condition resembles a neoplasm. It is difficult to differentiate between Hodgkin's disease and tuberculosis even when the glands are sectioned. The blood changes in lymphadenoma are so slight or so very variable that they are of practically no value in the diagnosis.

THURSFIELD The disease called lymphadenoma in animals differs from the lymphadenoma occurring in man.  
CYRIL J. GLASPEL M.D.

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE, POSTOPERATIVE TREATMENT

**Palmer L J** *Surgery in the Presence of Diabetes Mellitus* *Northwest Med* 1926 xiv, 196

The mortality of operations upon patients with diabetes mellitus has been decreased by advances in the chemistry of this disease and in the science of nutrition, better cooperation between surgeons and internists, better surgical technique, the use of less harmful anesthetics, earlier operation, and better hospital facilities.

When the taking of liquids by mouth is prevented for a considerable time by the nature of the operation or by vomiting it may be necessary to give glucose by rectum. When the surgical procedure or diarrhoea prevents the rectal administration of glucose its intravenous administration must be resorted to. When nutrition can be given by mouth liberal amounts of orange juice and oatmeal gruel will usually supply sufficient glucose for buffer purposes.

When it is possible to devote a day or two to the preparation of the diabetic patient for operation glycaemia should be reduced to at least 100 mgm per 100 c cm and the alkali reserve raised to at least fifty volumes per cent. Particularly in the presence of infection and in the cases of elderly patients care must be taken not to restrict the carbohydrate intake to such an extent that the glycogen stores will be depleted. In such cases more insulin should be given to remove ketone bodies, lower the glucose content of the blood and increase the glycogen reserve. The protein intake should not be less than usual, but the fat intake should be reduced to a very small amount.

Chloroform should never be used. Ether also should be avoided if possible. Nitrous oxide and oxygen alone or combined with local anaesthesia induced by infiltration or preferably by nerve blocking is very satisfactory. Spinal anaesthesia is probably the safest from the standpoint of the diabetes. Ethylene also is entirely satisfactory.

CARL R. STEINKE M D

**Bigger I A** *Hypertonic Sodium Chloride Solution Intravenously in the Treatment of Extensive Superficial Burns* *South W J* 19 6 xiv, 30

The silent symptoms associated with superficial burns are explained by the presence of a toxin in the blood. In severe burns concentration of the blood has been demonstrated in some instances and it is probable that such a change occurs in the majority of cases of extensive lesions.

Robertson and Boyd were able to demonstrate primary and secondary proteoses in burned animals.

When certain protein derivatives are injected intravenously, the concentration of the blood is increased. It therefore seems possible that the increased concentration found in severe burns is the result of the absorption of protein decomposition products due to the injury of the tissues.

Cannon considers low blood pressure the important factor in shock and believes that this is the result of a decrease in the blood volume. If this theory is correct a prompt increase in the volume of the blood is of importance.

Hypertonic sodium chloride solution given intravenously increases the blood volume promptly and for a considerable period of time. Therefore the author believes that its use is rational in the treatment of severe burns. It is proposed not as a substitute for debridement or the forcing of fluids, but to prepare the patient for debridement.

CYRIL J. GLASPEL M D

**Smith F** *A Rational Management of Skin Grafts* *Surg, Gynec & Obst*, 1926 xlii, 556

The best sources of skin for grafting are the upper arm of the male and the thigh of the female. When soft hairless skin is required the graft should be taken from the inner aspect of the limbs. There is no special advantage in choosing skin from an area of tension such as the deltoid, nor in obtaining it from the prepuce or scrotum.

It is obvious that a graft is parasitic and during the first two or three days after its transplantation it must be maintained by the absorption of tissue juices or lymph. Hence, its intercellular spaces must be open to the circulation of lymph in order that nourishment may be carried to its cellular elements. It must be cut accurately to size, maintained at normal tension, accurately fixed by carefully placed sutures and accurately approximated to its base by a proper even pressure. The skin must be free from fat. In the use of various pressures in the application of skin grafts Smith has found that for full thickness grafts a pressure of 30 mm Hg is very satisfactory.

This same care is not vital to the success of split skin grafts. A simple technique consists in smearing the source of the graft with a thin layer of vaseline, which materially facilitates the cutting of the piece, arranging the skin, raw surface outward, on dental impression compound molded to the part to be covered and applying this with a firm bandage without measuring the pressure.

The grafted part should be immobilized for several days. Histological descriptions of contracted skin, skin under normal tension, and skin on the second, fifth, tenth, and twentieth days after grafting are given.

CARL R. STEINKE M D

## ANÆSTHESIA

Meeker W R Recent Developments in the Technique of Regional Anæsthesia *Clin Med* 1926  
xxxiii 225

Local anæsthetic procedures may be divided into terminal infiltration field block and nerve block. Field block is especially applicable to the removal of superficial benign tumors and for anæsthesia of the fingers toes and metacarpal and metatarsal bones. Circular field block of the terminal rectum affords satisfactory anæsthesia for hæmorrhoidectomy. Field block is satisfactory also in the repair of the average hernia.

Paravertebral block of the spinal nerves is of great value when it is applied to cervical and sacral nerves. Block of the cervical plexus by the lateral oblique route affords adequate anæsthesia for operations on the neck such as thyroidectomy laryngec-

tomy and the removal of thyroglossal duct cysts and diverticula of the œsophagus.

In block of the sacral nerves a low sacral injection combined with transsacral injection of the lateral foramina affords most constant anæsthesia. By this method the entire pelvic floor and the viscera are anæsthetized so that the Kraske operation perineorrhaphy or perineal prostatectomy may be performed painlessly. With the addition of suprapubic field block resection of the bladder and suprapubic prostatectomy may be done.

Block of the splanchnic nerves does not afford sufficient anæsthesia for the performance of abdominal operations. If for any reason general anæsthesia is not to be employed these operations are best performed with the use of terminal infiltration methods combined with deep preliminary narcosis and followed by very gentle postoperative management.

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Wetterstrand G A Roentgen Therapy in Surgical Tuberculosis *Acta radiol*, 19 '14, 5-8

The author gives an account of the experiments he has carried out and the results he has obtained in the roentgen treatment of surgical tuberculosis. He believes that this treatment is of the same value as other procedures now in use provided the proper precautions are taken and has the added advantage that it causes the patient less expense. The best results are given by small doses—about one third the erythema dose, with an upward allowance of from 20 to 50 per cent.

Most of the cases reviewed were cases of tuberculous lymphomata. The stage of the condition has little influence upon the results, but the spreading and fistulous forms require more prolonged treatment than others. Local irritation must be avoided. A recurrence or infection of other glands occurred in 4 per cent of the cases, not dangerous skin changes in 12 per cent and telangiectases in 3 per cent. There was no necrosis.

The treatment proved extremely effective in tuberculous peritonitis without pulmonary or intestinal complications. Of twenty four such cases, fifteen remained cured after from two to five years and temporary improvement was obtained in five.

Tuberculosis of the female genital organs reacts extremely well to roentgen therapy. In the author's opinion roentgen irradiation is the best treatment for such cases. Of ten patients whose condition seemed hopeless when the treatment was begun four are well three have been free from symptoms for two years and two who are still under treatment have been benefited. One cannot be traced. Cases in which operation is performed should be given post-operative roentgen irradiation.

The author believes that in the treatment of tuberculosis of the male genital organs too little attention has been paid to roentgen therapy. His nine patients with this condition have been restored to health.

Cases of fistula after nephrectomy, puncture canals infected with tuberculosis, and secondary foci of the disease in the soft tissues have a good prognosis.

Roentgen irradiation is gaining favor also in the treatment of tuberculosis of the bones and joints.

Bardeen C R The Biological Effects of Roentgen and Gamma Rays. *Wisconsin M J*, 19-6, xxv 215

Investigations based on radio-activity have led to profound changes in some of the more fundamental theories of physics and chemistry. These are discussed at some length to correlate them as far as possible with the very imperfectly understood biological effects. They arise from the radiant energy

absorbed by the tissues. The roentgen and gamma rays absorbed affect primarily the electrons of various atoms whose period of revolution about the central nucleus corresponds in frequency to the wave frequency of the radiant rays. To these high speed electrons within the tissues are attributed most of the direct biological effects of radiation. They may interfere with the electrostatic tension of the colloid particles of the cell or alter the molecular structure of some of the constituents of the cell.

The part of the cell most susceptible to radiation is the nucleus. Brief mention is made of some of the experimental work by which this fact has been established. In general it has been found that the tissues most sensitive are those which contain a relatively large amount of chromatin, are in active cell division, or have great regenerative power. The cells of a ravaged tissue are unequally affected. Regeneration takes place from the uninjured or less injured cells, the cells at rest at the time of the exposure. Recovery is possible only when the regenerative powers of a tissue equal or exceed the susceptibility to injury, when there is a low injury regeneration ratio. The therapeutic value of the roentgen rays and gamma rays depends upon the fact that pathological tissues may have a higher injury regeneration ratio than normal tissues.

Reference is made to the relative sensitivity of various normal tissues reported by Hirsch and to the relative radio-sensibility of pathological tissues as given by Ewing. The latency in tissue effects following radiation is commented on, and various direct and indirect factors having a bearing thereon are mentioned. Hirsch's table showing the latency period of pathological tissues is included.

Favorable effects after suitable irradiation may result from direct destruction of tissue cells or from indirect local or systemic reactions such as lymphocytosis or localized fibrosis. Toxic substances may be produced. If these are not in excess they may stimulate chemical and morphogenic defense reactions which favor normal as opposed to pathological tissues. If in excess they may cause severe constitutional disturbances. ADOLPH HARTUNG M.D.

## RADIUM

McHutchison J P and Brown W H A New Development in Radium Therapy *Lancet* 1926, ccx, 7-5

The authors describe a method they devised to employ the active deposit of slow change viz Radium D and E. This deposit is found in all exhausted emanation (radon) tubes that have been prepared and remain unused in radon tubing institutes. The beta and gamma rays from Radium D and E have a

penetration sufficient to irradiate 3 mm of tissue. With this penetration such lesions as capillary and superficial cavernous naevi and lupus erythematosus can be treated.

Six cases are reported with a description of the technique. The results were very encouraging.

The active deposit is placed upon silver or nickel plates of various sizes and from 0.2 to 0.4 mm in thickness.

The problem of measuring the intensity of various applicators was solved in part by comparing with uranium oxide films by means of a beta ray electro-scope. Applicators producing an erythema in from three to seventeen days were made. From the view point of the time of exposure those producing an erythema in a few days are superior. Blistering and crusting are to be avoided.

The applicators are placed in contact with the lesion for the number of days necessary to produce an erythema. To protect the applicator from injury by moisture and friction both of which remove the invisible active deposit a layer of crepe de chine is placed between the applicator and the skin. The half decay period of the applicators is sixteen years.

A. J. LARKIN, M.D.

#### MISCELLANEOUS

Reyn. A. The Efficacy of Various Sources of Light in General Light Bath Treatment. *Acta radiol.* 1925 IV 541.

The author first briefly sketches the history of light treatment in general and reviews some of the

investigations made especially by Finsen and his pupils with regard to the power of light from different sources to penetrate living tissues. He discusses various conditions and problems connected with the treatment of surgical tuberculosis with light and points out that none of the theories so far advanced to account for the curative effect of light in this affection has proved entirely satisfactory. It still remains to be determined which rays of light are chiefly responsible for the cure.

Clinical results indicate that the chemical rays—and among these notably the more long waved ultra violet violet and blue rays—are of particular importance and that the luminous red rays also play a rôle.

The author concludes that sunlight is by far the best therapeutic light and that sanatoria for the treatment of surgical tuberculosis should be located either in Alpine country or by the sea where the sunlight contains all of the beneficial rays in a high degree of intensity. Sunlight is beneficial only when it contains an abundant quantity of chemical light. In northern Europe where most of the chemical rays of the sun are absorbed by the atmosphere during a considerable part of the year recourse must be had to artificial light.

Various sources of artificial light are mentioned. The best is the carbon arc light. The lamps must be specially constructed most of those found on the market do not meet the requirements. Only direct current can be used because it is the light from the crater that is most important in the treatment of these cases.

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Sequiera, J. H., Cheattle, G. L., Handley, W. S., Cope, Z., and Shaw, E. H. Precancerous States. *Proc Roy Soc Med Lond* 1916 xix Sect Surg 1

SEQUIERA The skin affections which predispose to cancer are (1) congenital anomalies such as pigmented and warty moles and xeroderma pigmentosa (2) senile changes such as senile keratomas (3) local irritation due to trauma or exposure to light, the rays, heat, and chemicals (4) scars from lupus lues and burns, (5) chronic dermatoses (6) Bowen's dermatosis and (7) Paget's disease of the mammary and extramammary.

CHEATTLE Epithelial hyperplasia of the breast is either directly or indirectly concerned in the carcinoma problem but it is impossible to describe a state of dysgenetic epithelial hyperplasia that inevitably ends in carcinoma.

HANDLEY Carcinoma is always preceded by long continued chronic inflammatory changes in the subjacent connective tissue. The lapse of time between the onset of these changes and the development of cancer may be as long as thirty years. Breast cancer often follows chronic mastitis and both conditions are found most frequently in the upper and outer quadrant of the breast. Chronic lymphatic obstruction is a frequent and perhaps constant factor in the etiology of cancer. It is probable that the rise in the lymph pressure leads to overnutrition and consequent proliferation of the connective tissue. Epithelial cells grow and develop normally only when they are associated in their growth with connective tissue cells.

The three most important factors in the causation of cancer are (1) chronic irritation bacterial thermal or chemical (2) lymphatic obstruction and (3) an acid reaction of the tissues.

CORE The term 'precancerous' can be applied only to clinical conditions recognized by the naked eye. In the tongue there are three conditions of a suspicious nature (1) chronic superficial glossitis with associated leucoplakia (2) papilloma and (3) dental ulcers at the margin of the tongue.

In the oesophagus there are no recognizable precancerous conditions.

It is very probable that cancer can and occasionally does become engrafted on simple ulcer of the stomach but this occurs much less frequently than is generally believed.

Cancer of the small bowel is very rare, but every papilloma of the small bowel must be regarded as a precancerous condition. In the large bowel cancer rarely follows ulcerative processes. There is little

evidence to prove that cancer of the colon is caused by the stagnation of bowel contents due to kinks.

SHAW The two chief precancerous conditions are chronic inflammation and simple new growths. All specimens of carcinoma of the breast show inflammatory changes but it appears quite evident that the inflammation preceded the new growth. A breast affected with chronic inflammation is in a precancerous state. Many papillomata of the skin, mouth and bowel are also precancerous conditions.

CARL J. GLASPEL M.D.

Morton J. J. Cancer of the Skin. *Arch Surg* 1926 vii 635

The three main types of skin cancers are the basal cell and squamous cell lesions and naevoid and melanotic growths. The last named resemble the squamous cell type but metastasize quickly and are rapidly fatal.

Morton discusses at length only the basal cell and squamous cell types. The histories of twenty-nine cases are given and illustrated by photographs or drawings.

### BASAL CELL EPITHELIOMA

Basal cell epithelioma is a lesion of advanced life the average age at which it appears being 55 years. Males are far more frequently affected than females and blondes more frequently than brunettes. Senile keratoses the most common precancerous condition result in basal cell growths. Persons exposed to sunlight and the weather are predisposed. Basal cell cancer never arises in a normal skin being always preceded by a dermatosis. One of its common antecedents is the seborrheic wart.

Although this type of cancer may occur on the extremities and trunk its most frequent site is above the clavicle.

Pathologically there are four types of basal cell cancer—the flat the nodular, the ulcerative and the annular. All are characterized by induration and hardness of the edges and the presence of the translucent pearly white nodules which are pathognomonic of rodent ulcers. The nodular types eventually ulcerate forming yellowish crusts with dry scales. The annular type which is rare is characterized by a whitish yellow healed central area surrounded by a raised pearly edged growth or scabbed ulceration.

Basal cell cancers are often multiple and their growth under the skin is much more extensive than is indicated by their surface appearance. On cross section the basal cell cancer is characterized by a smooth surface limited invasion of the subcutaneous tissues and alveoli much smaller than those of squamous cell growths.



Microscopically the cells of the basal cell cancer have all the staining qualities of the basal layer of the skin. Mitotic figures are easily found. After the corium is invaded a great variety of forms may be assumed in the arrangement of the cells—solid masses branching out growths hollow columns etc.

The course of the basal cell cancer is chronic. Often fifteen years may elapse before it attains the size of a quarter. There is a possibility that this type of cancer may be changed to a more virulent type and that a squamous cell growth may result if inadequate or no treatment is given. While basal cell cancer is relatively benign it kills by eroding the tissues and producing infection and hemorrhage. In the diagnosis it must be differentiated from squamous cell cancer, syphilis, lupus vulgaris and lupus erythematosus, blastomycosis, granuloma and certain skin inflammations.

It is the basal cell cancer which has established the reputation of the cancer quacks. Cures have been claimed for a great variety of methods. For early cases Morton regards irradiation with radium or the X rays as the method of choice. He has found however that a second or third course of treatment may be necessary before a complete cure is obtained. Growths which do not yield to two or three courses should be subjected to surgery. Advantages of knife incision over radiation therapy are that it removes the affected tissue completely in the minimal amount of time and allows an accurate diagnosis. Attention is called also to Clark's method of desiccation by monopolar endothermy, a method which is a distinct advance as it can be used on the eyelid and inner canthus.

#### TRANSITIONAL TYPES

Following his discussion of basal cell cancer the author reports two cases which he believes may represent transitional forms between the basal cell and squamous cell cancer.

#### SQUAMOUS CELL CANCER

Except for certain forms which arise from the scars of lupus vulgaris, squamous cell cancer like basal cell cancer is also a lesion of advanced life. It is more common than the basal cell cancer and occurs more frequently in men than women. No racial immunity to this cancer has been noted.

Although the etiological agent is not known it is evident that injuries, mechanical irritation, dermatoses, scars, ulcers and the action of certain chemicals and light rays play an important rôle in the causation of the lesion.

Squamous cell cancer may occur anywhere on the surface of the body but its most common site is the lower lip. The two principal varieties are the papillary and the deeply infiltrating ulcerative. The papillary form rapidly produces a projecting nodule of considerable size which ulcerates early. The ulcer becomes covered with a dry crust which drops off now and then and is reformed. The edges of the ulcer are irregular and indurated and if the crust is

removed the translucent grayish pink nodules of malignant tissue can be seen. The infiltrating type forms no external nodule to speak of, producing simply an abraded surface with jagged solid outlines and very extensive deep induration. The ulcer may have a very innocent appearance.

Squamous cell cancer may result from occupational irritations causing warts, patches of hyperkeratosis and skin atrophy.

Microscopic study shows the pink staining angular cells in varying degrees of cornification forming more or less complete epithelial pearls. The more rapid the growth of the squamous cells the less the chance of differentiation into the cornified type. Broders has found a basis for prognosis by comparing the degree of reversion to type with the clinical course of the disease. The greater the degree of cornification the less virulent the lesion.

The squamous cell cancer produces metastases while the basal cell cancer does not. Unfortunately there is no symptom which sends the patient to the physician early. The differential diagnosis most essential to make is between cancer and syphilis. If there is no response to antisyphilitic drugs within ten days the lesion must be considered malignant.

As squamous cell cancer metastasizes early the surgeon should remove the primary lesion with a wide margin and the lymphatic glands draining the area in one block.

Radiotherapists agree almost unanimously that squamous cell cancer is much more resistant to radiation than basal cell cancer. This should dispose of the theory of selective destructive action on the cancer cells. Injury to and fibrosis of the lymphatic channels has no demonstration in fact. Quick says:

By external radiation alone we do not feel we have ever been able to destroy completely fully developed epidermoid carcinoma in the cervical nodes.

In the author's opinion a combination of surgery and radiotherapy is desirable in every case. The treatment of choice is removal of the primary growth by electrocoagulation or cautery dissection and the use of emanation seeds *in situ*. Whenever possible all malignant tissue should be removed.

Squamous cell cancer of the scalp and forehead does not require removal of the regional glands but in cancer of the face, cheek, eyelid, chin or nose the glands should be removed with the lesion.

PAUL W. SWEET, M.D.

Nichols J. H. Goodhue F. W. Champion M. E. Bigelow G. H. and Lombard H. L. Cancer in Massachusetts. Boston M. & S. J. 1926. xciv. 388.

Cancer is increasing but there are indications that the peak of the curve may be nearly reached. In the United States Massachusetts has the highest death rate from cancer.

The cancer rate increases with the increase in the density of the population up to a population of about 4,000 per square mile and then remains nearly stationary.

The average length of life of persons who are operated upon for cancer and ultimately die from the condition is twenty two and eight tenths months, while that of persons who die from the condition without operative treatment is twenty months. The average duration of the condition from its onset to the time of operation is ten and three tenths months. The average patient seeks the physician's advice eight months after first noticing the symptoms.

As about one fourth of cancer deaths occur in hospitals there is need for additional beds for patients suffering with cancer. **SAMUEL KAHN M.D.**

**Crile G. W.** The Contact of the Surgeon with the Problem of Cancer. *J. Michigan State M. Ass.* 1926 XXV, 124.

Precancerous lesions should be removed completely when possible or given no treatment at all.

For established cases of cancer Crile advocates radical operation if the condition is operable and palliative surgery or radiation or both if it is inoperable. The treatment indicated for cancers of the various organs and tissues he summarizes as follows:

1 Skin radiation except in cases of pigmented moles, which should be excised.

2 Buccal surfaces mucous membranes of the mouth, excision, early cancer of the tongue, electric coagulation or the use of the actual cautery, early cancer of the lip, radium late cancer of the tongue or lip excision plus block dissection of the glands.

3 Larynx intrinsic carcinoma, laryngectomy plus postoperative radiation extrinsic carcinoma block dissection plus radiation if possible, tracheotomy plus radiation if inoperable.

4 Thyroid thyroidectomy plus radiation if operable, decompression plus radiation if inoperable, prevention by excision of fetal adenomata.

5 Esophagus gastrostomy for feeding plus radiation.

6 Breast radical operation. The value of radiation is still *subjudice*.

7 Stomach resection if possible gastro-enterostomy if inoperable.

8 Intestines sigmoid and rectum, colostomy plus radical operation if operable, colostomy plus radiation if inoperable.

9 Uterus for the fundus, radical operation for the cervix, radiation.

10 Genito-urinary organs operation plus post operative radiation in selected cases.

**SHIRLEY C. LYONS M.D.**

## DUCTLESS GLANDS

**Kuestner H.** Investigations of the Changes in Internal Secretion After Extirpation of the Uterus. Operative Castration and Roentgen Castration and in the Normal Climacterium (Untersuchungen ueber die innersekretorischen Veränderungen nach Uterus extirpation operativer Kastration, Roentgenkastration und im normalen Klimakterium). *Moralische f. G. Ehrlich u. Gynek.* 1923, LXX, 284.

The author investigated the changes in internal secretion after operative removal of the uterus, operative castration, and roentgen castration and in the normal climacterium to determine whether the menstrual disturbances of the menopause which are manifested chiefly by increased or irregular menstruation are best treated by operative removal of the uterus or X-ray treatment of the ovaries.

The function of the glands of internal secretion was tested by the Abderhalden method as simplified by Lüttge and von Mertz. By means of this test only a pathological change in the internal secretion of a gland is shown. Normal function and complete absence of function cannot be demonstrated. The procedure consists in mixing the patient's serum with a previously prepared extract of the organ and maintaining the mixture at a temperature of 37 degrees for twenty four hours. When changes have occurred in the gland, substances resembling amino acids are formed. These are extracted with 95 per cent alcohol and can be demonstrated by the ninhydrin reaction.

It was found that the serum of women in the normal climacterium and those who had been operatively castrated had no reaction to ovarian substance. The results were similar in the twenty-one cases in which only the uterus had been removed. Following castration with the X-ray the serum of twenty-one of twenty-three women showed a positive Lüttge von Mertz reaction to ovarian substance.

As the Lüttge von Mertz reaction to ovarian tissue was found still positive even four years after the X-ray exposure, it probably indicates a biological change such as is associated only with very severe disturbances.

Since roentgen castration not only destroys the normal function of the ovary but replaces it by what is apparently a pathological function, it is evident that great care is necessary in judging the indications for roentgen treatment and that extirpation of the uterus is preferable unless some other ailment such as cardiac failure, struma, or diabetes renders operation particularly dangerous. **SCHUMACHER (G.)**

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NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

## SURGERY OF THE HEAD AND NECK

### Head

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## CONTENTS

I. Index of Abstracts of Current Literature	iii
II. Authors	ix
III. Editor's Comment	x
IV. Collective Review	173 180
V. Abstracts of Current Literature	181 235
VI. Bibliography of Current Literature	236 258



# CONTENTS—SEPTEMBER, 1926

## COLLECTIVE REVIEW

THE PATHOGENESIS OF THE GASTRIC DUODENAL ULCER. *George Halperin M D Chicago* 173

## ABSTRACTS OF CURRENT LITERATURE

### SURGERY OF THE HEAD AND NECK

#### Head

IVY R H, and CURTIS L. Fractures of the Mandible An Analysis of 100 Cases 181

#### Eye

WEEKS, J E Tuberculosis of the Eye. 181

VERHOEFF F H A Case of Metastatic Intra Ocular Mycosis 181

LANCASTER W B The Fusion Faculty and Some of its Anomalies 181

SUKER, G F and CUSHMAN B An Improved Technique for Iridectomy for Glaucoma 181

OBARRIO P Lid Traction The Greatest Safeguard Against Vitreous Loss in Cataract Operation 181

#### Ear

SHAMBAUGH, G E The Development of the Membranous Labyrinth 181

HOLLENDER A R and COTTLE M H A Clinical and Experimental Study with Some Physical Agents in Partial Deafness Preliminary Report 185

#### Nose and Sinuses

PHELPS, K A Congenital Occlusion of the Choanae 185

GOALWIN H A Some of the Newer Methods of X Ray Examination of the Paranasal Sinuses, the Optic Canals the Pharynx and the Larynx 185

DEAN L W The Diagnosis and Treatment of Paranasal Sinus Infections in Infants and Young Children Under Ethylene Anesthesia 185

LODGE, W O Observations of the Frontal Sinus. 185

SCHREINER B F A Report on Fifty Four Cases of Malignant Neoplasms of the Antrum of High more 186

#### Mouth

REGAUD, C Radium Therapy in Cancer of the Tongue and Secondary Involvement of the Lymph Nodes 186

#### Pharynx

MOSHER H P Exostoses of the Cervical Vertebrae as a Cause of Difficulty in Swallowing 187

ORTON, H B Anterior Dislocation of the Atlas as a Cause of Inability to Swallow Solid Foods. 187

#### Neck

ELIASON, E L Inclusion Cysts of the Hyoman dibular Region 187

BEYKIRCH A. A Discussion of the Clinical Aspects and Histology of Struma and Their Relationship to One Another on the Basis of the Struma Material in Goettingen, 1922-1924 188

ALEMAN O Two Cases of Anterior Mediastinotomy for Struma Intrathorax 189

CLUTE H M and MASOV R L The Medical Treatment of Hyperthyroidism 189

MUSSER J H Exophthalmic Goiter and Tuberculosis 189

KOOPMAN J Conjugal and Luetic Basedow's Disease 189

BRODERSEN, N H Tetany Following Operations on the Thyroid Gland 189

LAHEY F H The Transplantation of Parathyroids in Partial Thyroidectomy 190

SMITHSON W M A Clinical and Pathological Study of Fifty Five Malignant Neoplasms of the Thyroid Gland 190

DWORETZKY J Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis and Its Effect on the Larynx 198

### SURGERY OF THE NERVOUS SYSTEM

#### Brain and Its Coverings Cranial Nerves

PAULI W E and VON REDWITZ E Remarks on the Construction and Use of the Meyer-Schlueter Sound 191

VON SARRÓ A. A Cured Case of Fat Embolism of the Brain Following Fracture of the Leg and Simulating Progressive Paralysis 191

DAVIS L. The Influence of Decompression Operations on Experimentally Produced Papilloedema 191

WINKELBAUER A and BRUNNER, H. The Treatment of Traumatic Frontal Brain Abscesses 191

LOCKE C E The Differential Diagnosis of Brain Tumor What May be Expected from Surgery 192

OLIVECROFT H Remarks on Local Anesthesia in Intracranial Operation with Special Reference to Albromin as a Substitute for Novocain 192

SEWALL, E. C. An Operation for the Removal of the Sphenopalatine Ganglion 192

**Spinal Cord and Its Coverings**

- HULTKRAAN J C An Unusual Cauda Equina  
Le 108 193
- VERGA P Some Cystic Structures of the Spinal  
Dura Mater and an Interpretation of Their  
Pathogenesis 193
- LANDELIUS E Experiences with Some Spinal  
Intradural Tumors 194

**Peripheral Nerves**

- FELIX WILLY Frexesis of the Phrenic Nerve in  
Pulmonary Affections 194
- GERCELY J and MARROWITS S Clinical Lessons  
from 100 Operations on the Phrenic Nerve 195

**Sympathetic Nerves**

- MANDR F The Effect of Paravertebral Injections in  
Angina Pectoris 195
- MELZNER L An Experimental Contribution on the  
So-Called Periaxillary Sympathectomy 195

**Miscellaneous**

- POLISSADOWA V Restoration of Innervation in  
Skin from plant 196
- BOYD W Three Tumors Arising from Neuroblasts 196

**SURGERY OF THE CHEST****Trachea Lungs and Pleura**

- FELIX WILLY Frexesis of the Phrenic Nerve in  
Pulmonary Affection 194
- GUY J and ILDEF H C Radiographic Explora-  
tion of the Broncho Pulmonary System by  
Means of Lipiodol 197
- CLERF I H Foreign Bodies in the Tracheobron-  
chial Tree A Report of Cases in Which  
Bronchoscopy Was Not Done 197
- CLERF I H Bronchoscopic Aids in Thoracic  
Surgery 197
- DW RETZKY J P Artificial Pneumothorax in the  
Treatment of Pulmonary Tuberculosis and Its  
Effect on the Larynx 198
- FEIFERMAN J The Care of the Bronchial Stump  
Following Amputation of the Lung 198
- MILLER W S A Study of the Human Pleura Pul-  
monary Its Relation to the Blebs and Bullae  
of Emphysem 198
- CARLSON F and BUNNELI S Can Pleural Effu-  
sions Following Thoracotomies be Prevented  
by Artificial Pneumothorax 198
- GOSSETT A and THALHEIMER M Pulmonary  
Complication in Gastric Surgery Autohe-  
motherapy 203

**Esophagus and Mediastinum**

- CLERF I H Cardiac Stenosis of the Esophagus 190
- REYNECKE R Report of an Unusually Large Divi-  
ciculum of the Esophagus Adherent to the  
Pleura and Its Surgical Treatment 190

- MELNIKOFF A Dislocation of the Larynx and  
Trachea in the Extirpation of Tumors of the  
Cervical Portion of the Esophagus 199

**Miscellaneous**

- BUTLER P F and HASBE J E Problems in the  
Diagnosis and Treatment of Metastatic Tumors  
in the Chest 200

**SURGERY OF THE ABDOMEN****Abdominal Wall and Peritoneum**

- KOOWITZ A R Experimental Results in the Use of  
Dead Fascia Grafts for Hernia Repair 201
- WEEKS A and BROOKS L The Treatment of  
Acute Peritonitis 201
- STEINBERG B and ICKER E L The Effect of  
Antiserum Against the Soluble Toxic Sub-  
stance of Bacillus Coli in Bacillus Coli Peritoni-  
tis 201
- SICARD ROBINEAU and LICHTWITZ Roentgeno-  
graphic Shadows Suggesting Calculi in Tuber-  
culous Pelvipertitonitis 201
- GUTIERREZ A Mobilization of the Root of the  
Mesentery Its Surgical Value 202

**Gastro Intestinal Tract**

- DIETRICH W and ROST F The Effects of  
Roentgen Ray Irradiation upon the Gastric and  
Intestinal Secretions 202
- VON STAFELMÖHR S A Case of Diffuse Acute  
Phlegmonous Streptococcus Gastritis Diag-  
nosed During Life Cure with Hourglass  
Stomach 202
- GHELIN E The Diagnosis of Syphilis of the  
Stomach 202
- SCHMID O The Condition of the Vagus Nerve in  
Cases of Gastric and Duodenal Ulcer 203
- DELORE X MALLET GUY P and VACHEY A  
Multiple and Recurring Forms of Ulcer of the  
Stomach 203
- AMBERGER Perforation of Gastric and Duodenal  
Ulcers 203
- BERNER J H Internal or Surgical Treatment of  
Bleeding Gastric Ulcers? 204
- OENELL H Experiences with the Parenteral In-  
jection of Albumin in Gastric Duodenal and  
Jejunal Ulcers 204
- HEYD C G Carcinoma of the Stomach Resection  
Implantation of the Duodenum into the  
Pancreas 205
- HANSEN F S The Results of Surgical Treatment  
of Gastric Cancer 205
- GOSSETT A and THALHEIMER M Pulmonary Com-  
plications in Gastric Surgery Autohe-  
motherapy 205
- DELORE X CREYSSEL J and DE ROUGEMONT J  
Pre Operative and Postoperative Care in  
Stomach Operations 205
- BUTLER E and DELPRAT G D Intestinal Ob-  
struction 206

PERLMANN, J Clinical Contributions on the Pathology and Surgical Treatment of Intestinal Obstruction

WOLF C G L, and CANNEY, J R C The Treatment of Ileus by Choline

BOLLING R W Chronic Irreducible Intussusception in a Twelve Months Infant, Resection

HERTZ, J and BASSFT A Cases of Acquired Periduodenitis

BOLLING R W Complete Congenital Obstruction of the Duodenum Duodenojejunostomy at Nine Days

KAPSIHOW, R The Experimental Production of Duodenal Ulcer by Exclusion of the Bile from the Intestine

HADEN R L, and ORR T G The Effect of Jejunostomy in Experimental Obstruction of the Jejunum of the Dog

FLECHTENMACHER, C, JR Radical Operation for Postoperative Peptic Ulcer of the Jejunum with Resection of the Colon and a Contribution on the Choice of Operative Procedures for Gastric Ulcer

DUETTMAN Recurrent Appendicitis Following Appendiceal Abscesses

## Liver, Gall Bladder, Pancreas, and Spleen

CRILE G W A Cytoplasmic Role of the Liver

RUBENSTONE A I and TUFT L A Comparative Study of Liver Functional Tests

BERGER S S COHEN M B and SELMAN, J J Liver Function Tests A Comparative Study of Five Methods in 100 Clinical Cases

FERNSTROM B A Case of Subphrenic Abscess with Vomited Gall Bladder

GRAHAM E A Gall Bladder Diagnosis from the Standpoint of the Surgeon

LYON B B V The Evolution of Early to Late Gall Tract Disease A Brief Consideration of Its Diagnosis and Treatment

ZINK, O C A Clinical Study of Cholecystitis with the Aid of Cholecystography

GEORGE A W The Practical Value of the Graham Cole Method in the Diagnosis of Gall Bladder Disease as Compared with the Older Method

BABCOCK, W W Cholecystitis and Appendicitis

BABCOCK W W Cholelithiasis Chronic Salpingo Oophoritis with Adherent Abdominal Scars

FABRICIUS W Spontaneous Perforation in Cholecystitis Without Stones

BONNET, L and LAPOINTE A Perforation of a Cancer of the Gall Bladder into the Peritoneal Cavity Emergency Cholecystostomy and Secondary Cholecystectomy

SOHN, A Fatal Biliary Peritonitis After Puncture of the Common Duct

PAYR, E Exposure of the Common Duct in Operation for the Recurrence of Stone After Cholecystectomy

HAVLICEK H A Case of Rupture of the Pancreas and Spleen Cured by Operation and Some Comments on the Shoulder and Arm Pain

JOHNSON, A A Pancreatic Disease

TOWER L E The Pathological Physiology of Experimental Gangrenous Pancreatitis

GUTIERREZ A Implantation into the Stomach of a Pancreatic Fistula Following Cyst

HARRIS, R I Splenectomy for Purpura Hemorrhagica

## MISCELLANEOUS

TROELL A Comments on the Fahraeus Reaction—the Stability of the Blood Suspension—in Acute Surgical Affections of the Abdomen

NEUHOF H and COHEN I Abdominal Puncture in the Diagnosis of Acute Intrapentoneal Disease

GHOSE D M A Case of Persistent Hiccup Treated Successfully by Injections of Novocain into the Phrenic Nerve

## GYNECOLOGY

### Uterus

ULESCO STROGANOWA K Endotheliomata of the Uterus

LINCH F W The Treatment of Squamous Cell Epithelioma of the Cervix

RUD H A Histological Investigation of a Case of Cancer of the Cervix of the Uterus Cured Locally by Radium and X Ray Treatment

WARD G G and FARAR, L K P The Radium Treatment of Carcinoma Uteri

VOLTZ F Carcinoma of the Cervix Treated Exclusively by Irradiation

### Adnexal and Peri Uterine Conditions

PETTINARI V The Ovarian Graft and Its Application to Treatment in Clinical Cases

BOLLING R W An Ovarian Cyst Free in the Peritoneal Cavity of Three Months Old Infant

SHAW W Krukenberg Tumors of the Ovaries

PRINCETEAU and MAGNAN Simultaneous Rupture of Both Fallopian Tubes

### External Genitalia

WATSON, B P A Technique for the Operative Treatment of Rectocele

## OBSTETRICS

### Pregnancy and Its Complications

KUPFER M Ovarian Pregnancy Following Operation for a Tubal Pregnancy on the Same Side

VON BONÓ R and LIEBMAN S Investigations Regarding the Calcium Ion Concentration of the Blood in Puerperal Eclampsia

LINDQUIST S Retention (for Nearly Twelve Months) of a Mature Fetus in a Uterus Which is the Seat of a New Pregnancy (Third Month)

COMMANDEUR ÉPARVIER and MICHON Cancer of the Cervix and Pregnancy Cesarean Section Porro's Amputation, Radium Therapy



MICHEL FRUHNHOLTZ and MATHEU Cancer of the Cervix with Pregnancy Hysterectomy in the Fourth Month End Results

### Labor and Its Complications

ESCH P The Occurrence of Brain Pressure and Its Effect upon the Fetal Heart Sounds During Labor

POLAK J O The Technique of Transperitoneal Cesarean Section

### Puerperium and Its Complications

KIRSTEIN A New Procedure for the Treatment of Severe Puerperal Infection

FOERST W Rectal and Vaginal Examinations and the Prophylaxis of Puerperal Infections

BOVIN E A Case of Puerperal Streptococcal Septicemia with Sequestering Osteitis of the Right Pubic Bone

## GENITO URINARY SURGERY

### Adrenal Kidney and Ureter

FUCHS P Studies of the Inner Typography of the Kidney

PFLAUMER E The Physiology of the Renal Calyces and the Renal Pelvis

ODY F The Pregl Test of Kidney Function and Haberer's Experiences with It

HINMAN F and HEPLER A B Experimental Hydronephrosis The Effect of Ligation of One Branch of the Renal Artery on Its Rate of Development IV Simultaneous Ligation of the Posterior Branch of the Renal Artery and the Ureter on the Same Side

SCHULTE W G Carcinoma with Hematuria A Case Report Showing the Consequences of Pyelography

DOURMASHKIN R L Dilatation of the Ureter with Rubber Bags in the Treatment of Ureteral Calculi

MIGNIAC G Accidental Section of the Ureter in the Course of a Hysterectomy for Cancer Simple Ligation Uncomplicated Recovery

BOUCHARD and LAQUIÈRE The Results of a Ureter orchiopexy at the End of Nineteen Years

### Genital Organs

COHEN I DODDS E C and WEBB C H S Observations Bearing upon the Operation of Prostatectomy

ROLNICK, H C Catheterization of the Ejaculatory Ducts

REITTERER E The Evolution of the Testicles of the Bull after Crushing of the Vas Deferens

### Miscellaneous

KUFENMELL H SR. Hemorrhages from the Urinary Organs

BAYZ P Horteloup's Resection of the Perineum for Complicated Gonorrhoeal Strictures

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS

Conditions of the Bones Joints Muscles Tendons Etc

ABRAMOWA A Exostosis Bursata

COKKALIS P Dupuytren's Contracture of the Palmar and Plantar Aponeuroses

WILENSKY A O and SAMUELS S S Osteomyelitis of the Sternum

ALLISON N and O'CONNOR D S Cysts of the Semilunar Cartilages Report of Two Cases of Cyst of the External Semilunar Cartilage and One Case of Cyst of the Internal Semilunar Cartilage

### Surgery of the Bones, Joints Muscles Tendons, Etc

JESSEN H The Importance of the Periosteum in the Origin and Treatment of Pseudarthroses

NAERVI E J Contributions on the Regeneration of Tendons and the Treatment of Tendon Ruptures Particularly in the Region of the Synovial Sheaths

ABBOTT L C and JOSTES F A A Simple Method for the Correction of Deformity in Bony Ankylosis of the Hip Joint

### Fractures and Dislocations

THOMAS T T Habitual or Recurrent Dislocation of the Shoulder

THOMSON J E M Fixation of Fractures of the Clavicle Another Method

CUTLER C W JR Fractures of the Head and Neck of the Radius

CHRISTOPHER F Fractures of the Head of the Femur

GARR C C A Spontaneous Fracture Following Bone Banding for Fractures

ALBER F H Mechanical Employment of Sequestrum Fracture of the Femur

## SURGERY OF BLOOD AND LYMPH SYSTEMS

### Blood Vessels

HABERER H A Case of Successful Suture of the Portal Vein

PEAYE O G Ligation of the Inferior Vena Cava

### Blood Transfusion

TROELL A Comments on the Fehrs Reaction—the Stability of the Blood Suspension—in Acute Surgical Affections of the Abdomen

RUBIN E H The Clinical Value of the Erythrocyte Sedimentation Reaction in Surgery

SEIFERT E Bacteria in the Blood After Operations

## SURGICAL TECHNIQUE

Operative Surgery and Technique Postoperative Treatment

DAVIS J S The Treatment of Deep Roentgen Ray Burns by Excision and Tissue Shifting

DAVIDSON, E. C. The Prevention of the Toxæmia of Burns Treatment by Tannic Acid Solution	233	GEORGE A. W. The Practical Value of the Graham Cole Method in the Diagnosis of Gall Bladder Disease as Compared with the Older Method	210
SEIFERT, E. Bacteria in the Blood After Operations	233	DAVIS J. S. The Treatment of Deep Roentgen Ray Burns by Excision and Tissue Shifting	233
<b>Anæsthesia</b>			
DEAN L. W. The Diagnosis and Treatment of Paranasal Sinus Infections in Infants and Young Children Under Ethylene Anæsthesia	185	<b>Radium</b>	
OLIVECRONA, H. Remarks on Local Anæsthesia in Intracranial Operations with Special Reference to Albromin as a Substitute for Novocain	192	REGAUD C. Radium Therapy in Cancer of the Tongue and Secondary Involvement of the Lymph Nodes	186
<b>PHYSICOCHEMICAL METHODS IN SURGERY</b>			
<b>Roentgenology</b>			
GOALWIN H. A. Some of the Newer Methods of Roentgen Ray Examination of the Paranasal Sinuses, the Optic Canals, the Pharynx, and the Larynx	185	RUD H. A Histological Investigation of a Case of Cancer of the Cervix of the Uterus Cured Locally by Radium and X Ray Treatment	216
GUY, J., and ELDER H. C. Radiographic Exploration of the Broncho Pulmonary System by Means of Lipiodol	107	WARD G. G., and FARRAR, L. K. P. The Radium Treatment of Carcinoma Uteri	217
SICARD, ROBINEAU and LICHTWITZ. Roentgenographic Shadows Suggesting Calculi in Tuberculous Pelvipentontitis	01	VOLTZ F. Carcinoma of the Cervix Treated Exclusively by Irradiation	217
DIETERICH W., and ROST, F. The Effects of Roentgen Ray Irradiation upon the Gastric and Intestinal Secretions	202	<b>MISCELLANEOUS</b>	
GRAHAM, E. A. Gall Bladder Diagnosis from the Standpoint of the Surgeon	210	<b>Clinical Entities—General Physiological Conditions</b>	
LYON B. B. V. The Evolution of Early to Late Gall Tract Disease. A Brief Consideration of Its Diagnosis and Treatment	210	SLYE M. The Inheritance Behavior of Cancer as a Simple Mendelian Recessive. Studies on the Nature and Inheritability of Spontaneous Cancer in Mice. 21st Report	234
ZINK O. C. A Clinical Study of Cholecystitis with the Aid of Cholecystography	210	BURROWS, M. T. Mechanism of Cancer Metastasis	234
		DE ASIS C. Cutaneous Carcinoma of the Lower Extremities	234
		BLAIR BELL W. The Theory and Practice in Relation to the Treatment of Cancer with Lead	234
		<b>General Bacterial, Protozoan and Parasitic Infections</b>	
		WAINWRIGHT J. M. Tetanus Its Incidence and Treatment	235

## BIBLIOGRAPHY

## Surgery of the Head and Neck

Head  
Eye  
Ear  
Nose and Sinuses  
Mouth  
Pharynx  
Neck

236  
236  
237  
237  
238  
238  
238

## Surgery of the Nervous System

Brain and Its Coverings Cranial Nerves  
Spinal Cord and Its Coverings  
Peripheral Nerves  
Sympathetic Nerves  
Miscellaneous

239  
240  
240  
240  
240

## Surgery of the Chest

Chest Wall and Breast  
Pneumonia Lungs and Pleura  
Heart and Pericardium  
Esophagus and Mediastinum  
Miscellaneous

241  
241  
241  
241  
242

## Surgery of the Abdomen

Abdominal Wall and Peritoneum  
Gastrointestinal Tract  
Liver Gall Bladder Pancreas and Spleen  
Miscellaneous

242  
242  
245  
246

## Gynecology

Uterus  
Adnexal and Peruterine Conditions  
External Genitalia  
Miscellaneous

246  
247  
248  
248

## Obstetrics

Pregnancy and Its Complications  
Labor and Its Complications  
Puerperium and Its Complications  
Newborn  
Miscellaneous

249  
250  
250  
251  
251

## Genito-Urinary Surgery

Adrenal Kidney and Ureter  
Bladder Urethra and Penis  
Genital Organs  
Miscellaneous

251  
252  
252  
253

## Surgery of the Bones Joints, Muscles Tendons

Conditions of the Bones Joints Muscles Tendons  
Etc  
Surgery of the Bones Joints Muscles Tendons Etc  
Fractures and Dislocations  
Orthopedics in General

253  
254  
254  
255

## Surgery of the Blood and Lymph Systems

Blood Vessels  
Blood Transfusion  
Lymph Vessels and Glands

255  
255  
255

## Surgical Technique

Operative Surgery and Technique Postoperative  
Treatment  
Antiseptic Surgery Treatment of Wounds and  
Infections  
Anesthesia  
Surgical Instruments and Apparatus

255  
256  
256  
256

## Physicochemical Methods in Surgery

Röntgenology  
Radium  
Miscellaneous

256  
256  
257

## Miscellaneous

Clinical Entities—General Physiological Conditions  
General Bacterial Protozoan and Parasitic Infec-  
tions  
Ductless Glands  
Surgical Pathology and Diagnosis  
Experimental Surgery  
Hospitals Medical Education and History  
Medical Jurisprudence

257  
257  
258  
258  
258  
258  
258

## AUTHORS

OF THE ORIGINAL ARTICLES ABSTRACTED IN THIS NUMBER

- Abbott L C 229  
 Abramowa A 228  
 Albee, F H 230  
 Aleman O, 189  
 Allison N 228  
 Amberger 204  
 Babcock W W 211  
 Basset A, 207  
 Bazy P 227  
 Berger S S 210  
 Berner J H, 204  
 Beykirch A 188  
 Blair Bell W 234  
 Bolling R W, 07 208,  
 218  
 Bonnet L 212  
 Bouchard, 225  
 Bovin E 222  
 Boyd W, 196  
 Brodersen N H, 189  
 Brooks L 201  
 Brunner, H 191  
 Bunnell S 193  
 Burrows M T 234  
 Butler, E 206  
 Butler P F 200  
 Canney J R C 207  
 Carlson E 198  
 Christopher, I, 230  
 Clerf L H 197 199  
 Clute, H M 189  
 Cohen, I 215 225  
 Cohen M B 210  
 Cokkalis P 228  
 Commandeur 220  
 Cottle M H 183  
 Creyssel J 205  
 Crile G W 209  
 Curtis L, 181  
 Cushman B 181  
 Cutler C W Jr 230  
 Davidson E C 233  
 Davis J S 233  
 Davis L 191  
 Dean L W 183  
 De Asis C 234  
 Delore X 203 205  
 Delprat G D 205  
 De Rougemont 205  
 Dieterich W 202  
 Dodds E C 225  
 Dourmashkin R L, 225  
 Duettmann 208  
 Dworetzky J P 198  
 Ecker E L 201  
 Esch P 221  
 Elder, H C 197  
 Elhason E L 187  
 Éparvier, 220  
 Fabritius W, 212  
 Farrar, L K P 217  
 Feiermann J, 198  
 Felix, Willy, 194  
 Fernstroem B 210  
 Flechtenmacher C, Jr  
 208  
 Fruhinsholz, 21  
 Fuchs F 223  
 Fuerst W 222  
 Garr C C, 230  
 George, A W 210  
 Gergely J 195  
 Ghose D M, 215  
 Gmelin E 02  
 Goalwin H A, 185  
 Gosset, A 205  
 Graham E A 210  
 Gutierrez A, 20 14  
 Guy J, 197  
 Habbe, J C 200  
 Haberer H 232  
 Haden R L, 208  
 Halpern G 173  
 Hanssen F S 205  
 Harris R I 214  
 Havlicek H 213  
 Hepler A B 224  
 Hertz J 207  
 Heyd C G 205  
 Hinman F 224  
 Hollender A R 185  
 Hultkrans J C 193  
 Ivy R H 181  
 Jessen H 228  
 Johnson A A 213  
 Jostes F A 229  
 Kapsinow R 208  
 Kirstein 222  
 Koontz A R 201  
 Koopman J 189  
 Kuemmell H Sr, 26  
 Kupfer M 220  
 Lahey I H 190  
 Lancaster W B 181  
 Landelius E 194  
 Lapointe, A 212  
 Laquiere 225  
 Lichtwitz 201  
 Liebmann S 220  
 Lindquist S 220  
 Locke C E 192  
 Lodge W O 186  
 Lynch F W 216  
 Lyon B B V 210  
 Magnan 218  
 Mallet Guy P, 203  
 Mandl F 195  
 Markovits S 193  
 Mason R L 189  
 Mathieu 221  
 Melnikoff A 199  
 Melzner E 195  
 Michel 21  
 Michon 220  
 Vigniac G 225  
 Miller W S 198  
 Mosher H P 187  
 Musser J H 189  
 Naervi E J 2 9  
 Neuhoof H 15  
 Obarrio I 182  
 O Connor D S 2 8  
 Ody F 4  
 Oehnell H 204  
 Olivecrona H 19  
 Orr T G 208  
 Orton H B 187  
 Pauli W E 191  
 Payr E 212  
 Perlmann J 207  
 Pettinari V 217  
 Pfaff O G 232  
 Pflaumer E 223  
 Phelps K A 185  
 Polak J O 2 1  
 Polissadowa X 196  
 Princeteau, 18  
 Regaud, C 186  
 Reinecke R 199  
 Retterer, E 226  
 Robineau 201  
 Rolnick H C 226  
 Rost F 202  
 Rubenstone A I 209  
 Rubin E H 232  
 Rud H 216  
 Samuels S S 228  
 Schmid O 203  
 Schreiner B F 186  
 Schulte W G, 224  
 Seifert, E 233  
 Selman J J 210  
 Sewall E C 192  
 Shambaugh G E 182  
 Shaw W 218  
 Sicard 01  
 Simpson W M 190  
 Slye, M 234  
 Sohn A 212  
 Steinberg B, 201  
 Suker G F 181  
 Thalheimer, M 205  
 Thomas T T 229  
 Thomson, J E M 230  
 Tower, L E 213  
 Troell A 215  
 Tuft L 209  
 Ulesco-Stroganowa K, 216  
 Vachey A 203  
 Verga P 193  
 Verhoeff F H, 181  
 Voltz F 217  
 Von Bodó R 220  
 Von Redwitz E 191  
 Von Sarbó A 191  
 Von Stapelmohr S, 02  
 Wainwright J M, 235  
 Ward G G 217  
 Watson B P 219  
 Webb C H S 225  
 Weeks, A 201  
 Weeks J E 181  
 Wilensky, A O 228  
 Winkelbauer A, 191  
 Wolf C G L 207  
 Zink, O C 210

## EDITOR'S COMMENT

THE tremendous impetus that has been given to the study of the physiology and pathology of the liver and bile passages as a result of the introduction of Graham and Cole's method of gall bladder visualization is reflected in a constantly increasing number of papers on this subject emanating from surgical clinics in widely separated centers. Rubenstone and Tuft's discussion of the comparative value of functional liver tests (p. 209) and Graham, Lyon, Zink, and George's symposium on the diagnosis of gall bladder disease (p. 210) are some of the recent contributions that are helping to make the diagnosis of disease of the liver and bile passages more certain and accurate.

Some of the difficulties of secondary operations on the gall bladder and the bile passages are discussed in Payr's interesting paper on exposure of the common duct in operations for recurrence of stone after cholecystectomy (p. 212). The use of a catheter and syringe is again recommended as a method of disengaging stones high up or low down in the ducts.

The possibility of anastomosing a biliary fistula with the stomach or duodenum as emphasized by Babcock (p. 211) and the ease with which deep hemorrhage may be controlled by upward pressure on the hepatoduodenal ligament with the index finger in the foramen of Winslow as has been suggested by Gibson and other surgeons should be remembered in connection with Payr's suggestions for overcoming the technical difficulties of the operation. Gutierrez's account of the implantation of a pancreatic fistula into the stomach (p. 214) indicates the possibility of successfully treating pancreatic fistulae as well as biliary fistulae by this method.

Fuch's studies of the inner topography of the kidney (p. 23) emphasizes the fact that just before they enter the parenchyma large blood vessels from the ventral group pass in the inter-

stices between the calyces to join the dorsal group, and that when the incision suggested by Zondek is made to deliver a large pelvic stone these large vessels may be divided. Bouchard and Laquiere's examination of a patient nineteen years after ureterorrhaphy emphasizes the importance of the peristaltic action of the ureter in the normal evacuation of the renal pelvis. In this case, although the ureter had been sutured without resulting stricture formation, the pelvis and upper ureter were dilated and filled with turbid stagnant urine.

Butler and Delprat's review of ninety-three cases of intestinal obstruction from the San Francisco Emergency Hospital (p. 206), Weeks and Brooks' recommendation as to the treatment of acute peritonitis (p. 207), and Delore, Creyssel and De Rougemont's discussion of the care of patients before and after operations on the stomach (p. 205) are of particular interest because of the emphasis placed on non-operative measures—fluid administration, complete rest for the gastrointestinal tract and gastric lavage—as important measures in securing rest and aiding elimination.

Carlson and Bunnell's experimental studies on the value of pneumothorax as the prevention of pleural effusions after thoracotomy (p. 198) and Naervi's study of the methods of tendon regeneration and repair (p. 229) suggest some important and practical clinical applications.

Voltz' review of the results of irradiation treatment of carcinoma of the cervix in the Munich Gynecological Clinic from 1912 to 1919 (p. 217), Davis' description of methods of treating deep X-ray burns (p. 233) and Albee's interesting account of a difficult and eventually successfully treated case of fracture of the femur complicated by osteomyelitis (p. 230) are a few of many abstracts worthy of special note in this month's issue of the ABSTRACT.

# INTERNATIONAL ABSTRACT OF SURGERY

SEPTEMBER, 1926

## COLLECTIVE REVIEW

### THE PATHOGENESIS OF THE GASTRIC-DUODENAL ULCER<sup>1</sup>

By GEORGE HALPERIN, M D, CHICAGO

THE so called peptic ulcer of the stomach and duodenum is a common malady in man. Its cause, however, is as much a mystery today as it was when Claude Bernard first demonstrated that the leg of a living frog will be digested if placed through a fistula in a dog's stomach. Why does not the gastric mucosa digest itself? Dragstedt and Vaughn have shown that other living tissues will resist the action of gastric juices. John Hunter believed that a certain vital principle inherent in the parts protected them from digestion.

Since healthy cells will successfully withstand the action of gastric juice, we must presuppose that the vitality of the cells must be lowered before the gastric juice can exert its proteolytic action upon them. Virchow postulated that all chronic gastric ulcers originate from an erosion. Aschoff defines an erosion as a superficial loss of substance of the mucous membrane resulting from the disintegration of a circumscribed mucosal necrosis or from a hæmorrhagic infarction with secondary digestion. The loss of tissue must be limited to the mucosa and the uppermost layers of the submucosa. The muscularis proper is not involved.

Thus the ulcer problem can with advantage be approached from two sides, the origin of the erosion and the development of a chronic ulcer from the erosion. The erosion is the pivotal point from which we must start and to which we must return in all our speculations regarding the origin of the chronic gastric or duodenal ulcer. That the origin of the erosion has not been

solved is attested to by the existence of several widely divergent theories. The following will be here discussed: (1) The circulatory theory, (2) the neurogenic theory, (3) the infectious theory, (4) the inflammatory theory, and (5) the mechanical functional theory.

#### I THE CIRCULATORY THEORY

The circulatory theory was advanced by Virchow and Hauser in 1853. Virchow taught that ulcers are produced by an infarction of a terminal blood vessel with consequent necrosis, the starting point for the digestive action of the gastric juice. This view was universally accepted. In connection with this conception the rôle played by the excessive gastric secretion assumed a special importance. Among the older clinicians, Riegel considered hypersecretion the decisive factor. This view was later shared by Boas, Sippy, and von Bergmann, in fact by the majority of clinicians.

It was pointed out that chronic ulcers occur only in that part of the gastro intestinal tract which is exposed to the action of the hydrochloric acid, viz, the stomach and the first two inches of the duodenum. They do not occur in the œsophagus and are rare in the cardia. When the jejunum is exposed to the action of the gastric juice, as following a gastro-enterostomy for ulcer, the well known marginal ulcer frequently develops. On the other hand, no such type of ulcer has ever been observed when the gastroenterostomy was performed for gastric cancer.

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## EDITOR'S COMMENT

THE tremendous impetus that has been given to the study of the physiology and pathology of the liver and bile passages as a result of the introduction of Graham and Cole's method of gall bladder visualization is reflected in a constantly increasing number of papers on this subject emanating from surgical clinics in widely separated centers. Rubenstone and Tuft's discussion of the comparative value of functional liver tests (p. 209) and Graham, Lyon, Zink, and George's symposium on the diagnosis of gall bladder disease (p. 210) are some of the recent contributions that are helping to make the diagnosis of disease of the liver and bile passages more certain and accurate.

Some of the difficulties of secondary operations on the gall bladder and the bile passages are discussed in Payr's interesting paper on exposure of the common duct in operations for recurrence of stone after cholecystectomy (p. 212). The use of a catheter and syringe is again recommended as a method of disengaging stones high up or low down in the ducts.

The possibility of anastomosing a biliary fistula with the stomach or duodenum as emphasized by Babcock (p. 211) and the ease with which deep hemorrhage may be controlled by upward pressure on the hepatoduodenal ligament with the index finger in the foramen of Winslow as has been suggested by Gibson and other surgeons should be remembered in connection with Payr's suggestions for overcoming the technical difficulties of the operation. Gutierrez's account of the implantation of a pancreatic fistula into the stomach (p. 214) indicates the possibility of successfully treating pancreatic fistulae as well as biliary fistulae by this method.

Fuchs' studies of the inner topography of the kidney (p. 223) emphasizes the fact that just before they enter the parenchyma large blood vessels from the ventral group pass in the inter-

stices between the calyces to join the dorsal group, and that when the incision suggested by Zondek is made to deliver a large pelvic stone these large vessels may be divided. Bouchard and Laquière's examination of a patient nineteen years after ureterorrhaphy emphasizes the importance of the peristaltic action of the ureter in the normal evacuation of the renal pelvis. In this case although the ureter had been sutured without resulting stricture formation, the pelvis and upper ureter were dilated and filled with turbid stagnant urine.

Butler and Delprat's review of ninety-three cases of intestinal obstruction from the San Francisco Emergency Hospital (p. 206), Weeks and Brooks' recommendation as to the treatment of acute peritonitis (p. 207), and Delore, Creyssel and De Rougemont's discussion of the care of patients before and after operations on the stomach (p. 205) are of particular interest because of the emphasis placed on non-operative measures—fluid administration, complete rest for the gastrointestinal tract, and gastric lavage—as important measures in securing rest and aiding elimination.

Carlson and Bunnell's experimental studies on the value of pneumothorax as the prevention of pleural effusions after thoracotomy (p. 198) and Naerri's study of the methods of tendon regeneration and repair (p. 219) suggest some important and practical clinical applications.

Voltz' review of the results of irradiation treatment of carcinoma of the cervix in the Munich Gynecological Clinic from 1912 to 1919 (p. 217), Davis' description of methods of treating deep X-ray burns (p. 233), and Albee's interesting account of a difficult and eventually successfully treated case of fracture of the femur complicated by osteomyelitis (p. 230) are a few of many abstracts worthy of special note in this month's issue of the ABSTRACT.

ulcer patients are "sympathetotonics" or "sympathetotonics." Attractive as this hypothesis may seem, it is unsupported by convincing clinical data on the one hand nor by experimental data on the other.

### III THE INFECTIOUS THEORY I STREPTOCOCCI 2 OIDIUM ALBICANS

*I Streptococci* Rosenow claims to have been able repeatedly to produce ulcerations in the stomachs of experimental animals by inoculating with streptococci cultivated from foci of ulcer patients and from the ulcers themselves. Such foci were usually abscessed teeth or tonsils. The streptococci in these cases seem to possess a characteristic selective affinity for the mucous membrane of the stomach or the duodenum. Streptococci were again recovered from the experimental lesions and again reproduced ulcerations in stomachs upon re-injection. The ulcers thus produced resembled those in man in location, in gross and microscopic appearance, and in the fact that they tended to become chronic, to perforate, and to cause severe or fatal hemorrhage. According to Rosenow, the necessary requirements have been fulfilled to warrant the conclusion that the usual ulcer of the stomach and duodenum in man is primarily due to a localized hematogenous infection of the mucous membrane by streptococci.

Mann and Williamson of the same clinic (Mayo) have developed a rather ingenious method for producing chronic ulcers in dogs. They transplant the duodenum into the ileum and anastomose the jejunum into the pylorus. Rosenow did not accept their physiological explanation of ulcer causation. He was able to find a streptococcus in these ulcers as well. He again demonstrated their selective localizing power on intravenous injection, their presence in the foci of infection of the experimental animals, and their ability to produce poison *in vitro*. More than that, he was able to immunize some of the animals against ulcer development.

In a series of dogs, Ivy failed to produce ulcers by injecting streptococci of proven virulence into two or three branches of the gastro-epiploic artery.

Rosenow's conclusions await confirmation by other workers.

*2 Oidium albicans* Very recently (1921), Askanazy claims to have found *oidium albicans*, long known as a common saprophyte of the human mouth in the craters of ulcers in resected stomachs. He succeeded in developing ulcers in animals by inoculating into injured mucosa

ground up tissue taken from the craters of human ulcers. This work was negated by the findings of other workers who discovered these organisms chiefly in the periphery of ulcers and not in the necrotic zone, and were not able to reproduce the lesions. The organism is therefore regarded as an accidental saprophytic contamination of no etiological importance.

### IV THE INFLAMMATORY THEORY

So far, attempts to solve the ulcer problem have brought out the fact that healthy mucosa will resist digestion. Therefore, a loss of cell vitality must be assumed to occur before the development of an ulcer. It was necessary to determine the earliest damage to the mucosa. Trauma, mechanical, thermal, or chemical, suggested itself as the possible cause. Experimental attempts in this direction resulted in failure since, as has been previously mentioned, no one succeeded in producing a chronic ulcer experimentally.

It was suggested also that the initial damage might be brought about by circulatory disturbances in the gastric or duodenal vessels. Pathological conditions of the vessels themselves, such as stasis, thrombosis, embolism, or sclerosis, were considered. It was borne in mind also that circulatory disturbances might be brought about indirectly by neurogenic influences, such as angiospasm or by spastic contraction of the gastric musculature resulting in compression of the gastric vessels. Any of these disturbances might lead to the formation of hemorrhagic infarcts or areas of anæmic necrosis, a starting point for digestion by the active gastric juice.

Experimental ligation of blood vessels produced erosions and ulcerations, but these displayed the same tendency to heal rapidly as experimental ulcers caused by direct injury to the mucosa. Such experiments therefore did not throw any light upon the origin of chronic peptic ulcer in man.

The recent increase in stomach resections for gastric and duodenal ulcers furnished an abundant and valuable material for histological studies. So far, reports have been published by relatively few workers, chief of whom are Moskowicz, Konjetzny, Orator, Kalma, Lehman, and Puhl. These studies assume a particular significance because of the striking uniformity in the findings of the various investigators and the number of stomachs examined, which is well up in the thousands. They point out in the first place the unreliability of postmortem material as contrasted with warm fresh material obtained by



resections. These studies have resulted in an entirely different viewpoint.

It was found that in all cases of gastric or duodenal ulcer there existed a gastritis or a duodenitis. The inflammation was most marked in the antrum, the fundus portion exhibiting very little or no inflammatory change. The duodenal mucosa showed an inflammatory change in cases of duodenal ulceration, and not infrequently also in cases of gastric ulcer. In a very considerable percentage of cases the areas of gastritis contained multiple small oval round, and linear erosions, the largest of which could be recognized macroscopically as superficial erosions. In some of the preparations such erosions covered by a fibrinous deposit were unusually numerous. Gross inspection of these specimens gave the impression that the lesions represented various stages of development of the same process. Specimens were observed which showed no frank ulcer but just the picture described.

Konjetzny found microscopically in cases of gastric or duodenal ulcer a gastritis or duodenitis in all stages of development. Closer histological study revealed their unmistakably inflammatory character. The histological picture was so typical as to be identical in dozens of preparations. There was to be observed an infiltration of the interstitial tissue with polymorphonuclear leucocytes. The epithelium of the glands showed here and there degenerative changes such as fatty infiltration or desquamation and loss of epithelium. In places where the epithelial lining was seen to be broken there were noted accumulations of polynuclear leucocytes in a meshwork of fibrinous exudate. These histopathological units differed from those of a typical ulcer in extent only. The findings described were confined to the antrum and the duodenal bulb.

Konjetzny particularly calls attention to the fact that most painstaking studies of the blood vessels in these areas failed to reveal any change in their walls, neither did he observe any evidence of hemorrhage such as hæmorrhagic deposits. He had never noted anæmic necrosis or hæmorrhagic infarction or the so-called hæmorrhagic erosions so frequently seen in the fundal portion at autopsy. In view of his findings the theory of a nutritional disturbance brought about through direct or reflex circulatory disturbances and causing anæmic necrosis or hæmorrhagic infarction in otherwise normal gastric mucosa as a starting point for peptic digestion appears to him utterly untenable. On the other hand inflammatory changes in the mucosa without any evidence of peptic digestion were observed with

great regularity. The periodicity of the clinical symptoms may find an explanation in the tendency of these erosions to heal.

The conclusion was drawn that the development of gastric or duodenal ulcer depends upon a more or less acute inflammatory process of the mucosa, as the result of which the gastric juice can exert its proteolytic action upon the damaged area. Because of functional motor activity the resulting superficial defects or erosions of the mucous membrane can develop into chronic ulcers.

The occurrence of a local gastritis in the vicinity of an ulcer was well recognized but was always regarded as secondary to the ulcer. The idea that it may be the cause rather than the effect was first conceived by Cruveilhier and later emphasized by Mathieu. Paul Cohnheim considered 'acid gastritis' the first step in the development of a gastric or duodenal ulcer. Nauwerck in 1895 expressed the belief that the gastritis might be the primary condition and the cause of an ulcer. He coined for it the comprehensive term *gastritis chronica ulcerosa*.

If it be true that the erosions found in the areas of inflammation are the starting points of ulcer formation it remains only to follow or rather to explain their conversion into chronic ulcers. This phase of the problem has been elucidated by Aschoff and his school. In his anatomical mechanical or motor functional theory Aschoff endeavors to explain the relation of mucosal erosions to chronic ulcer.

#### V MECHANICAL OR MOTOR FUNCTIONAL THEORY

Essential to the understanding of the mechanical or motor functional theory is Aschoff's conception of the function of the so-called 'Magenstrasse'—the gastric pathway or gastric channel, and of the isthmus portion of the stomach. The name 'Magenstrasse' was applied by Waldeyer in 1908 to a characteristic arrangement of the folds of gastric mucosa along the lesser curvature.

The fact that practically all typical gastric ulcers occur in the area of this gastric channel suggested that for some reason the *magenstrasse* is particularly vulnerable.

To demonstrate the existence of the gastric channel Bauer advises fixing the stomach with formalin by the intravascular route not later than three or four hours after death. Such a stomach still retains its tonus, but is no longer capable of contracting with consequent change of the mucosal topography. When it is opened along the greater curvature, a groove is found in

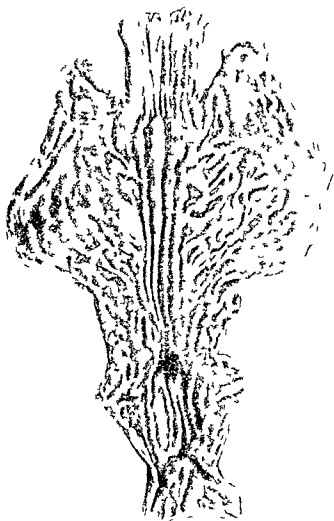


Fig 1 The stomach of an adult removed two and one half hours after death The magenstrasse very prominent Note the difference between the mucus folds of the corpus and those of the pylorus (after K. H. Bauer)

the lesser curvature area This groove, which begins at the cardia and runs toward the pylorus, is interrupted at the incisura angularis It is delineated by two or three wall like longitudinal folds The base of the groove shows both smooth mucosa and lower ridges These parallel folds run from the cardia as prolongations of the longitudinal folds of the esophagus, down to the pylorus without exhibiting any communicating transverse folds They are not demonstrable in greatly distended stomachs When Bauer introduced 25 per cent sulphuric acid into the stomach of a partly anesthetized dog through a stomach tube, the escharotic effect of the acid was confined to the magenstrasse

The fold system of the gastric mucosa is of course due to its redundancy The tone and the contractions of the gastric musculature throw the

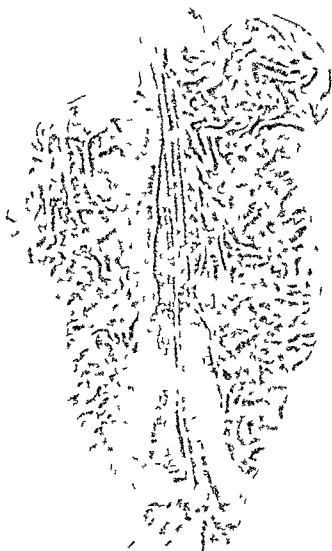


Fig 2 Human stomach removed one and one half hours after death fixed for twenty four hours, and then opened (after K. H. Bauer)

redundant mucosa into folds The topography of the gastric mucosa is therefore the anatomical expression of the functional activity of the gastric musculature What determines the peculiar arrangement of the gastric pathway? The answer must be found in a study of its muscular structure As is known, the stomach, unlike the rest of the gastro intestinal tract, possesses three muscular layers, a longitudinal, a circular, and an oblique layer Bauer has demonstrated that the special anatomical character of the magenstrasse is due to the existence there of the oblique fibers in addition to the longitudinal and circular fibers

Contraction of the circular fibers throws the mucosa into longitudinal folds and narrows the stomach throughout, but it is the presence of oblique fibers that explains the persistence of the



Fig. 3. Erosions of the gastric pathway (After Stroh meyer)

longitudinal folds of the *magenstrasse*. The synergistic action of the circular with the oblique fibers forming horseshoe like interlacing bundles explains why, as shown roentgenologically, food will be held at the cardia for a considerable time although this area possesses no sphincter. The longitudinal folds of the gastric channel cease at the incisura because the oblique fibers cease at that point.

The gastric channel therefore differs from the rest of the stomach in that it has a characteristic musculature. By the contraction of its fibers it can form a lumen of its own distinct from that of the rest of the stomach. Bauer concludes that the structure and the function of the *magenstrasse* suggest that it is the phylogenetic rudiment of the gullet of ruminating animals. The human stomach represents the welding of two organs. The greater vulnerability of the *magenstrasse* is explainable on the ground that it is not well adapted to be a part of the digesting stomach, being in reality a survival of the original gullet. The pathogenesis of the *magenstrasse* therefore falls in a class with that of the appendix and the gall bladder. In other words it shares together with the latter structures the disposition of all rudimentary organs.

Aschoff points out that the blood supply of the *magenstrasse* is not as rich as that of the fundus portion. The fundus is supplied by the branches of the right and left gastroepiploic arteries and by the collateral branches from the

gastric artery. The gastric channel is supplied by the recurrent branches of the gastric or pyloric arteries only.

Ligation experiments performed by Xano on rabbits (unpublished, quoted by Aschoff) demonstrated the difference. Ligation in the region of the gastro-epiploic arteries had no recognizable effect upon the fundal mucosa, whereas ligation in the area of the gastric or pyloric artery led to localized nutritional disturbances which were demonstrated by the subsequent intravenous injection of dyes. The mucous membrane areas belonging to the ligated vessels remained more or less colorless. Aschoff thinks that in man also, arterial blocking must play a particular rôle in the origin of these changes in the gastric channel. Moreover, he calls attention to the fact that the branches of the gastric artery have a segmental arrangement in the gastric wall and the areas between these may be particularly affected by the frequent and powerful contractions of the *magenstrasse*.

It is interesting to examine Aschoff's views regarding the origin of the erosion itself. He insists upon differentiating between hemorrhagic erosions of the fundus and erosions of the gastric channel. These lesions owe their origin to entirely different conditions, but in neither case do infectious toxic infectious or mechanical factors play a prominent part. He sees in circulatory disturbances the probable cause of both. Fundus erosions are caused by venous stasis and the spasmodic movement of vomiting. Erosions of the *magenstrasse* are probably the result of the peculiar spastic condition of the channel itself or of arterial blocking. In view of Konjetzky's histological studies embolic blocking can be ruled out. Atherosclerotic changes are more frequent but they are also unusual since these erosions and ulcers develop in the young and the middle aged. It is possible that spastic contractions of the vessels themselves may be responsible. While experimental evidence is lacking Aschoff is inclined to believe that such contractions play an important part in the origin of erosions of the *magenstrasse*.

The isthmus is to be looked upon not as a special anatomical structure, but as a functional one. It was first described by Forsell as the narrow pass. Aschoff frequently observed it in examining the stomachs of recently killed soldiers during the late war. It represents a tonic contraction of a part of the stomach. On a mixed diet the isthmus takes on the shape of a funnel through which the fluid contents rapidly digested in the corpus are transported to the vestibule.



Fig. 4 I Limit between the fundus and the corpus II Limit between the infundibulum and pyloric canal III Limit between the pyloric canal and duodenum i Isthmus (After Aschoff)

and from there are evacuated by the contraction of the pyloric canal

The gastric channel extends from the cardia to the beginning of the pyloric canal. The impression is given that the gastric channel and the pyloric canal should be regarded as one functional unit. The separation of the *magenstrasse* from the rest of the stomach can be well recognized even on transverse section throughout a contracted stomach. It can then be seen that the channel, now better called the groove, is limited by the four familiar folds, while the folds of the fundus lie irregularly, one against the other. One gains the impression that the contracted, i.e., more or less empty stomach drains the juices from the fundus into the gastric groove so that they may flow toward the pylorus. To this conception the objection has been raised that no such gradual opening out of the stomach from the gastric groove is to be seen in roentgenograms. Very recently, however, Orator has been able to show just such opening pictures in his roentgenological studies at the Vienna Surgical Clinic. With the rapid introduction of an opaque meal, the fold system opens up very quickly so that these differences are not recognizable.

It is now quite evident that the fate of an erosion in the *magenstrasse* will be quite different from that in the fundus. In the latter one finds

the greatest mobility of the fold system, in the former taut longitudinal folds. The fundus discharges gastric juice, while the *magenstrasse* receives it and acts as a sort of a drainage tube. Losses of substance in the gastric channel continue to gape, and they come in contact with the gastric juices much longer and are injured mechanically by the peristaltic movements more than erosions in the fundal portion. Also of importance may be the fact that fundal mucosa secretes a thin mucus which is poured out over the wound surface for protection. This mucous formation has not been observed in the region of the *magenstrasse*.

To sum up, the particular predilection of the *magenstrasse* for the development of chronic ulcers is attributed to the following facts:

- 1 As a rudimentary structure the *magenstrasse* is not well adapted to be a part of the digesting stomach.
- 2 Its blood supply is comparatively poor.
- 3 Because of its special physiological function as the gastric pathway, it is subjected to frequent and powerful muscle spasms.
- 4 The peculiar anatomical arrangement of its folds makes it difficult for a mucosal erosion to heal.
- 5 The mucous membrane of this area does not secrete a protective mucin.

The last word upon the subject of the pathogenesis of the gastric duodenal ulcer has not yet been spoken. Much new knowledge has been gained from recent histological studies of resected stomachs. These studies have given us a new viewpoint, namely, the inflammatory theory. The work of Aschoff and his collaborators has thrown a flood of light on the subject of the physiology of the stomach. New and original conceptions regarding the function of the gastric channel and the isthmus have opened up new vistas. We seem to be on the threshold of a solution of this difficult and important problem.

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# ABSTRACTS OF CURRENT LITERATURE

## SURGERY OF THE HEAD AND NECK

### HEAD

Ivy R H, and Curtis, L Fractures of the Mandible An Analysis of 100 Cases *Dental Cosmos*, 1926 lxxviii 439

The 100 cases of fracture of the mandible reviewed by the author did not include fractures resulting from bone infection or new growths. Ninety per cent of the patients were males, and with one exception all were over 18 years of age. All of the fractures were due to force. Sixty eight per cent were single, 31 per cent were double, and one was triple. In ten cases no fixation was necessary. Seventy nine (88 per cent) were treated by wiring the upper and lower teeth together. The number of fixations by several different methods, the time between the injury and the fixation, and the time of maintenance of the fixation are given in a table in the original article.

The authors conclude that fractures of the mandible demand the most accurate reduction and approximation of the fragments based on proper occlusion of the teeth, and that in 90 per cent of the cases of any type of fracture of the mandible the simplest and most effective method of fixation is intermaxillary wiring of the teeth.

EMIL C ROBITSHEK, M D

### EYE

Weeks J E Tuberculosis of the Eye *Am J Ophthalm* 1926 3 s ix 243

The various manifestations of tuberculosis in different parts of the eyeball and its adnexa are described briefly. The different tuberculins commonly employed are compared and their use in diagnosis is discussed. The author comments also upon tuberculin treatment and its results.

THOMAS D ALLEN, M D

Verhoeff, F H A Case of Metastatic Intra Ocular Mycosis *Arch Ophthalm*, 1926 lv 225

Verhoeff reports a case of metastatic intra ocular infection with organisms which formed granules and clubs resembling those found in actinomycosis. The organisms differed from actinomyces in that the filaments which composed the granules were more delicate, unbranched, and gram negative. They were not acid fast.

The eye was enucleated, but the patient had fever and enlargement of the liver and there were evidences of endocarditis. Potassium iodide was administered, but the condition continued and

death occurred five months after the onset of the first symptoms.

It is suggested that similar cases without ocular involvement may sometimes escape recognition.

SAMUEL A DURR, M D

Lancaster W B The Fusion Faculty and Some of its Anomalies *Am J Ophthalm*, 1926 3 s ix, 247

Lancaster briefly reviews the development of the fusion faculty in animals. In most lower animals the fusion faculty is little needed or developed. In the carnivora and animals that live in trees accurate judgment of distance is important. The eyes therefore turn forward so that the fields of vision overlap and binocular fusion develops. The mechanism necessary to secure binocular vision includes fibers connecting the eye and various visual centers and the motor apparatus.

Points not on the horopter impressing points of the retina not identical give the sense of depth. Different lights and colors falling on corresponding points of the two eyes lead to rivalry of the two retinal fields and diplopia. Suppression of one retinal image is learned when it serves to meet the visual needs.

THOMAS D ALLEN, M D

Suker G F and Cushman, B An Improved Technique for Iridectomy for Glaucoma *Am J Ophthalm* 1926 3 s ix 268

In iridectomy as performed by the authors a curvilinear conjunctival incision is made about half way between the limbus and the insertion of the superior rectus with its convexity toward the cornea. The flap is then dissected free from the limbus of which from 6 to 8 mm is exposed, and the dissection continued slightly beyond the limbus without splitting the cornea. A cataract knife is then introduced vertically 1 or 2 mm above the limbus at either end of the exposed sclera and thrust 1 cm into the anterior chamber, just anterior to the iris, the section being then completed by an upward sawing cut to a point opposite the wound of entrance. This gives a shelving serrated incision practically through the scleral spur.

The iris is seized with a forceps drawn out gently and downward and forward toward the cornea. With an iris scissors, successive small nicks are made in the iris, one blade being kept under the upper scleral edge until the opposite end of the section is reached. The iris is then drawn in the opposite direction and severed completely.

The conjunctival flap is replaced by stroking with a spatula. Sutures are rarely necessary.

The advantages claimed for this method are the conjunctival flap the cicatrix away from cornea tissue a serrated scleral section favoring a filtering scar and prompt healing. The tension is reduced and remains so without the use of miotics. After the operation 1 per cent atropine may be instilled. The danger of late infection is very slight. Drawing the iris downward without tearing it favors the deposit of iris pigment in the wound. From twenty four to forty eight hours after the operation the suspensory ligament and occasionally the ciliary body are visible through the coloboma. When the anterior chamber is obliterated the section may be made as in a cyclodialysis. Scopolamine and morphine are used before the operation in all cases.

SAMUEL A. DURR M.D.

**Obarrio P. Lid Traction the Greatest Safeguard Against Vitreous Loss in Cataract Operation**  
*Am J Ophth* 1926 35 11 264

Decreased intraocular tension renders vitreous loss less probable while pressure on the globe causes loss of vitreous by increasing the intraocular tension. Traction on the lids causes collapse of the cornea and diminishes tension making instrumentation safer particularly the use of a lens spoon or loop. The mechanical principles and the anatomy involved are discussed. The speculum used by Obarrio is similar to de Lapersonne's speculum. It has blades which fit well with little tendency to slip and between the arms and the blades are hinges which make it possible to rotate the arms backward or forward without disturbing the relation between blades and the lids.

The assistant seizes the speculum as soon as the corneal section is completed and makes traction constantly on both lids until the eye is banded. The operator's movements are anticipated in order that he may be given the best exposure at all times.

In enucleations pressure is made on the lids to cause the eye to move forward.

SAMUEL A. DURR M.D.

## EAR

**Shambaugh G. E. The Development of the Membranous Labyrinth** *Arch Otolaryngol* 1926 11 233

According to Shambaugh one of the difficulties in preparing sections for microscopic study of the internal ear is the securing of sections which will present the relationships in such a way that they can readily be understood. The labyrinth of the ear of the domestic pig is particularly suitable for such preparations because in the embryo as well as in the newborn pig it can be separated with its capsule from the surrounding structures with little difficulty.

Shambaugh describes and illustrates five preparations as follows:

**First preparation (Fig 1)** This preparation was obtained from a pig 3.5 cm long. The section is horizontal passing through the cochlea and vesti-

bule and the posterior part of the capsule which contains the semicircular canals. Included in this preparation is the stapes. The cartilage forming the anterior part of the stapes is directly continuous with that of the capsule whereas the posterior border of the stapes has already separated from this capsular cartilage through the formation of connective tissue.

The relations of the facial nerve and large blood vessels the location of important structures such as the sacculus the utricle and the maculae acusticae and the location of the semicircular canals in the posterior part of the preparation and of the cochlea and ductus cochlearis in the anterior part are described in detail.

**Second preparation (Fig 2)** This preparation shows a marked advance over that from the 3.5 cm embryo. The structures forming the beginning of the perilymphatic vestibule and those which enter into the formation of Corti's organ are described.

**Third preparation (Fig 3)** This section again passes through the niche of the oval window in which is recognized the cartilage forming the stapes. Attention is called to the thickening of the epithelium in the sacculus and utricle for the formation of the maculae and the plane of these two end organs lying at right angles to each other. No sign of an otolith membrane is as yet seen.

In the basal coil at the lower right hand corner of Figure 3 the absorption of the connective tissue reticulum surrounding the ductus cochlearis is well started. The beginning of a scala vestibuli above and of a scala tympani below is recognized. The upper wall of the ductus cochlearis goes to form the membrane of Reissner. The absorption of connective tissue for the formation of the scala tympani is not advanced far enough to form a recognizable membrana basilaris.

**Fourth preparation (Fig 4)** In this preparation the cross section of the cochlea as known in adult life becomes recognizable. Attention is directed to the changes in the epithelial thickening forming Corti's organ also to the development of a substantial membrana tectoria. The development of the scala tympani throughout the basal coil has progressed far enough to permit the formation of the structure which is later recognized as the membrana basilaris and in all but the apical coil the formation of the spiral ganglion is also well advanced.

**Fifth preparation (Fig 5)** This section passes directly through the center of the modiolus cutting the ductus cochlearis in each of the two and one half coils in a manner which shows Corti's organ to best advantage that parallel with the pillars of Corti. The cartilage of the capsule has completely changed into bone and there is a mechanism fully developed and apparently ready to receive impressions from the impulses of sound waves. It seems probable therefore that a newborn pig is capable of hearing.

A. R. HOLLENDER M.D.



Fig. 1

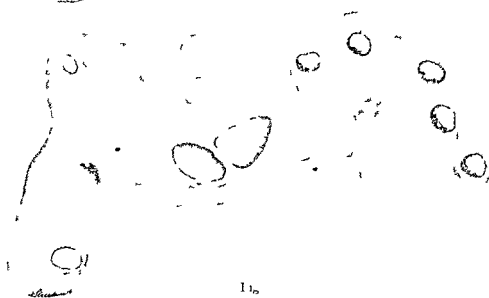


Fig. 2

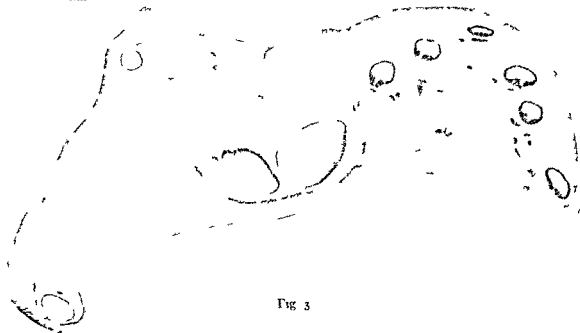


Fig. 3





Fig. 4



Fig. 5

Hollender A R and Cottle M H A Clinical and Experimental Study with Some Physical Agents in Partial Deafness Preliminary Report *Arch Otolaryngol*, 1926, 11 338

The authors made experimental and clinical studies in an attempt to establish a basis for the use of diathermy in the treatment of progressive undifferentiated defective hearing They do not maintain that electrophysical therapy is specific or that it replaces other measures which are known to offer a favorable prognosis, but state that in a large series of cases of chronic catarrhal deafness it has been found of some value even after other measures have failed Further experience may show that it is possible thereby to arrest the symptoms of otosclerosis

The clinical improvement obtained is dependent upon four factors (1) the nature and extent of the pathological changes, (2) the apparatus and electrodes used, (3) the manner in which the treatment is applied, and (4) the length of time the treatment is continued

The treatment should be applied on the basis of anatomical principles and continued over a long period

The time that has elapsed since the author's experiments has been too short to warrant a decision as to the permanency of the improvement or cure

JAMES C BRASWELL, M D

## NOSE AND SINUSES

Phelps K A Congenital Occlusion of the Choanæ *Ann Otol Rhinol & Laryngol* 1926, xxxv, 143

Congenital occlusion of the choanæ may be membranous or bony unilateral or bilateral, complete or incomplete and accompanied by other congenital defects It occurs in females twice as often as in males and is bilateral three times more frequently than unilateral Unilateral occlusion occurs much more commonly on the right side than on the left The condition does not seem to be hereditary

The symptoms of complete obstruction are striking as the infant has great difficulty in breathing and in nursing and its nasal cavities are filled with a peculiar glairy gelatinous secretion Additional findings are anosmia diminished lung expansion on the affected side, an increase in the blood pressure, incontinence of urine, dyspepsia, and dry pharyngitis

The symptoms of unilateral obstruction are less marked The diagnosis is confirmed by the impossibility of passing a probe through the nose, by nasopharyngoscopic examination and by palpation with the finger in the nasopharynx

The recognized method of treatment consists in making an opening through the obstruction and removing it In the author's opinion, the posterior portion of the septum should also be removed

GEORGE R. McCAULIFF, M D

Goalwin, H A Some of the Newer Methods of X-Ray Examination of the Paranasal Sinuses, the Optic Canals, the Pharynx, and the Larynx *Laryngoscope*, 1926, xxxvi, 235

In a rather detailed discussion of some of the newer methods of examining the paranasal sinuses, the optic canals, the pharynx, and the larynx with the X ray, Goalwin calls attention to the fact that the roentgen examination of the paranasal sinuses is probably the most widely used laboratory procedure in rhinology

He contends that the widely prevalent practice of making a diagnosis of sinus conditions from one or two roentgenograms may lead to serious error even in acute cases and is absolutely unreliable in chronic cases The complete examination of the sinuses requires at least seven roentgenograms, a lateral, a postero anterior a cephalodorsoventral, a caudodorsoventral, and an axial roentgenogram and one each of the right and left optic canals

Each sinus has a normal illumination which depends upon its depth as well as the density and thickness of its walls and those of the skull Before a decision is made with regard to the condition of a sinus the normal illumination to be expected must be estimated Such an estimate is made possible only by a full lateral and full postero anterior view

The roentgenologist should be thoroughly familiar with all of the clinical and roentgenological aspects of the disease, any deformities of the head, and needless to say, the finest details of the anatomy of the head

In roentgenography of the optic canals great precaution is necessary The size of the focal spot of the tube should be measured and the distance of the focal spot from the plate and of the canal from the plate should be noted

The size of the optic canal cannot be determined directly from the film It must be calculated

The roentgenologist's duty does not end when he makes a diagnosis He should furnish the clinician with all of the anatomical data which can be determined from the roentgenograms as these will be of aid in the treatment A R. HOLLENDER, M D

Dean, L W The Diagnosis and Treatment of Paranasal Sinus Infections in Infants and Young Children Under Ethylene Anæsthesia *Laryngoscope* 1926, xxxvi 257

In Dean's experience sinus disease in infants and young children which is associated with severe systemic conditions such as arthritis, chorea and nephritis has been slow to yield to treatment Little difficulty has been encountered in diagnosing chronic sinus infection, but eradication of the last trace of the sinus disease has been less simple

Irrigation of the maxillary sinuses is best accomplished under ethylene anæsthesia

The diagnosis of sinus disease in infants and young children is facilitated by ethylene anæsthesia For operations on the nose or sinuses, chloroform and oxygen are preferred because, when they are

employed the field is much less bloody and electrically driven suction machines may be used in the operating room with safety.

Dean now uses a new technique in investigating the maxillary sinuses. Instead of inserting a long needle through the trocar that has been passed into the sinus he attaches a syringe directly to the trocar and injects sterile normal salt solution into the sinus and aspirates it through the trocar. The trocar has an interior diameter three times that of the needle formerly used therefore larger pieces of pus and thicker pus may be aspirated. The technique described obviates the danger of injuring the sinus wall by a second needle which as originally used projected beyond the end of the trocar.

The material aspirated is examined macroscopically for pus and sent to the laboratory for microscopic examination and culture.

A R HOLLENDER M D

#### Lodge W O Observations on the Frontal Sinus *Brit M J* 1926 1 60

During quiet intervals in recurrent catarrhal inflammation a diagnosis is difficult as the nasal chambers appear healthy. Transillumination is of no help and roentgenograms are negative. Hence most reliance must be placed on the history.

The continued use of an oily spray containing methol chlorotone etc may ward off an attack and during an attack the introduction beneath the middle turbinate of cotton pledgets wet with cocaine and adrenalin may give relief. Resection of the anterior portion of the middle turbinate with or without probing and dilatation of the duct yields more consistently satisfactory results.

Mucocoele is less frequent in the frontal sinus than in the other sinuses. Its development is favored by closure of the outlet and the absence of pyogenic organisms. Surgery is the treatment indicated.

Empyema is due to ascending infection from the nose resulting from trauma influenza the presence of foreign bodies or ethmoid suppuration. In this condition also surgery is indicated.

Among miscellaneous affections discussed are tuberculosis of the frontal bone gummatous periorbitis sarcoma and osteoma.

GEORGE K. McALLIFF M D

#### Schreiner B F A Report on Fifty Four Cases of Malignant Neoplasms of the Antrum of Highmore *Arch Clin Cancer Research* 1925 1 65

Schreiner reports on fifty four cases of tumor of the antrum of Highmore on forty one of which a biopsy was performed. Thirty three of the neoplasms were classified as epitheliomata three as spindle cell sarcomata three as myxosarcomata and two as giant cell sarcomata. The remaining thirteen which were not examined by biopsy were clinically malignant.

In the period from 1914 to 1920 the treatment usually consisted in the surgical removal of as much of the tumor as possible. In one case treated in

June, 1916 resection of the superior maxilla was done and followed by the introduction of radium into the cavity of the antrum and the application of low voltage X rays from the outside. This patient has been clinically well since November 1916.

Since 1920 the practice has been varied. In many cases the implantation of bare tubes into the tumor mass in the antrum has been done through the mouth and in some instances directly through the hard palate which was eroded. The remaining cases have been treated by the insertion of radium seeds or radium tubes filtered through mm of brass and 1 mm of rubber through an opening made above the alveolar process. While in all of the cases treated up to 1920 the radium application was supplemented by low voltage X rays applied from the outside or by radium packs at a distance of 6 cm more recently high voltage X ray treatment divided over a period of from ten to twelve days has been used in the cases in which radium seeds have been implanted or radium tubes applied. It has often been necessary to remove sequestra weeks or months following the treatment.

The results are summarized as follows:

1 Five patients who had an epithelioma of the antrum of Highmore have been clinically well for periods ranging from six months to nine years.

2 Two patients treated for giant cell sarcoma of the antrum are clinically well eight and one half years and five years respectively after radical surgery and radiation.

3 Of the three patients with spindle cell sarcoma one has had relief for a year but the two others show no improvement.

4 The three patients with myxosarcoma failed to respond to treatment and died.

5 When the disease has metastasized to the regional lymph nodes improvement has only been temporary.

A R HOLLENDER M D

### MOUTH

#### Regaud C Radium Therapy in Cancer of the Tongue and Secondary Involvement of the Lymph Nodes (Ueber die Radium therapie der Zungenkrebe und ihrer sekundären Druesenerkrankungen) *Strahlentherapie* 1925 vii 73

The author reports upon the results of radium irradiation in 174 cases of cancer of the tongue which were treated at the Radium Institute of the University of Paris in the period from 1920 to 1931. A clinical cure i.e. disappearance of the local tongue affection was obtained in eighty-one cases (46.5 per cent) but in thirty nine of these death resulted from metastases in the lymph nodes. At the Cancer Congress at Strassburg in 1923 the author reported upon the twenty four cured cases which were irradiated in 1920 and 1921. Since in the meantime there has been only one death from recurrence of the cancer he considers it justifiable to regard as permanent cures the newly published cases. Cures were obtained more frequently in

carcinoma of the anterior portion of the dorsum of the tongue than in those of the posterior portion

When the ulcer is very small the diagnosis not entirely certain and the excision of a specimen would be equal to total extirpation of the lesion the treatment should be surgical. Other cases come within the scope of radium treatment

Following a brief description of the most effective method of treating with radium the author discusses the metastases in the lymph nodes. Whereas for the primary tumor he prefers radium puncture with  $\frac{1}{2}$  mm platinum needles he states that this procedure has not stood the test in the treatment of metastases in the lymph nodes. Whenever possible, he does an extirpation and follows it by irradiation as he sees in the great volume of tumors of the lymph nodes a cause for the failure of the radium therapy. Only when operation is impossible without laying open the carcinomatous area does he give radium treatment alone.

When lymph node involvement is not evident prophylactic irradiation is necessary only in cancer of the base of the tongue. In carcinoma of the posterior portion of the dorsum radium gives very poor results therefore the author prefers roentgen ray irradiation for this condition. **BERNSTEIN (2)**

### PHARYNX

**Mosher, H P** Exostoses of the Cervical Vertebrae as a Cause of Difficulty in Swallowing *Laryngoscope* 1926 xxxvi 181

**Orton H B** Anterior Dislocation of the Atlas as a Cause of Inability to Swallow Solid Foods *Laryngoscope* 1926 xxxvi 183

**MOSHER** reports two cases of exostosis of the cervical vertebrae causing difficulty in swallowing. In the first case, that of a woman of 74 years the X ray showed exostoses of the bodies of the fifth and sixth vertebrae while in the second that of a young woman, it revealed exostoses of the bodies of the sixth and seventh vertebrae.

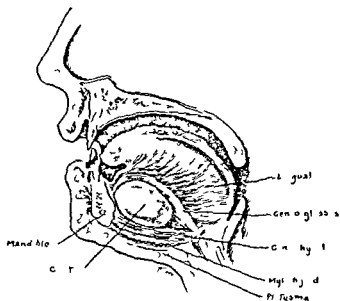
**ORTON** cites the case of a child of 3 years who regurgitated or expectorated all solid foods as soon as they were given. The child had not been delivered with instruments, but it was claimed that the attendant in awaiting the arrival of the doctor retarded the birth of its head. The child was 11 months old before he was able to sit up and 7 or 8 months old before he was able to hold up his head. X ray examination revealed an anterior dislocation of the atlas. The author reports the case because of the infrequency of this condition as a cause of difficulty in swallowing.

**GEORGE R McALLIFF MD**

### NECK

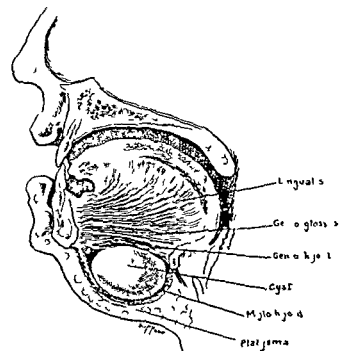
**Ellason F L** Inclusion Cysts of the Hyomandibular Region *Thorp Ca* 1916 1234

The author gives the embryology of inclusion cysts of the hyomandibular region. The first branchial



**FIG. 1** The sublingual type of cyst occurring above the genioglossus muscle

chial cleft locates cysts that appear in the aural submaxillary sublingual and submental regions. The lining of such cysts reproduces the structure of the ectoderm or endoderm. If the external groove fails to become entirely obliterated and closes only at the external surface an inclusion cyst will be the result. This cyst will be laterally placed and lined with epidermis. If it ruptures externally or is opened a branchial sinus (not fistula) results. These cysts have a thick tough wall composed of all the skin



**Fig** The submental type of cyst. Note the genioglossus muscle above and the mylohyoid muscle below

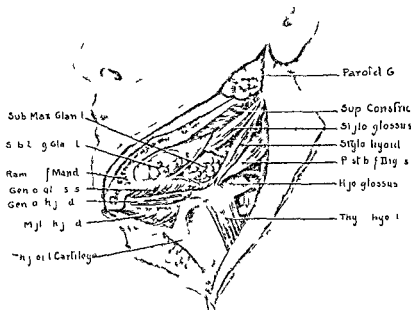


Fig 3 The anatomical structures with which the development of the hyoman dibular cleft is concerned

layers and contain the products of skin activity namely sebaceous matter hair and desquamated epithelium

If the ventral or inner groove fails to unite entirely a pharyngeal diverticulum results. If it unites only on the pharyngeal surface a branchial inclusion cyst is formed. The lining of this type of cyst is of endodermic origin and is composed of mucous membrane with a basement layer of columnar epithelium.

These cysts have a thin friable wall and contain a mucoid substance. Lymphoid tissue is abundant and striated muscle, mucous glands and islands of cartilage may be found.

Sublingual cysts or midline cysts come from the ectoderm of the first branchial arch and lie at the base of the tongue above the geniohyoid muscle or between it and the mylohyoid muscle.

The clinical symptoms of inclusion cysts depend upon the position of the cyst. The mass causes a sense of fullness rather than true pain. Cysts of the aurial type appear just below and in front of the ear while those of the submaxillary type appear as gradually increasing swellings between the angle of the jaw and the hyoid bone. The sublingual type of cyst appears just beneath the mucous membrane of the floor of the mouth. Cysts of the submental type cause no inconvenience but are extremely unsightly.

The author reports five cases of inclusion cysts in the hyoman dibular region.

HOWARD A. MCKNIGHT, M.D.

**Beykirch, A.** A Discussion of the Clinical Aspects and Histology of Struma and Their Relationship to One Another on the Basis of the Struma Material in Goettingen 1922-1924 (Klinik und Histologie der Struma in ihrem Verhaeltnis zu einander kritisch bewertet an Hand des Goettinger Strumamaterials 1922-1924) *Beitr z klin Chir* 1925 cxxxv 163.

The author reviews the clinical syndrome and the histology of 185 cases of struma. The large follicular proliferating forms of struma are very common in Goettingen. Most of the subjects are at the age of puberty. All of the other forms occur at a more advanced period of life. Frequently a mixed form with large and small follicles is seen.

In the choice of treatment (iodine treatment or operation) the clinical symptoms particularly those of hyperthyroidism must be taken into consideration. The clinical symptoms of proliferating struma are sometimes due to mechanical causes and at other times to functional disturbances (hyperthyroidism). At the age of puberty iodine treatment must therefore be given only with great care. Operative procedures result with certainty in a reduction in the size of the gland without functional disturbances.

The Basedow struma and nodular struma belong to a more advanced period of life. In these types hyperthyroidism is less frequent. Everything indicates that hyperthyroidism is by no means entirely dependent upon the thyroid gland, other factors are involved. All in all the hereditary goiteranlage and the constitution and age of the struma

are of importance Struma is responsible for a large number of syndromes and as regards its functional manifestations should be judged only from the complete picture presented in the particular case

KOCH (Z)

**Aleman O** Two Cases of Anterior Mediastinotomy for Struma Intrathorax *Acta chirurg Scand* 1926 1v 135

The author reports two cases of intrathoracic struma with well marked symptoms of compression of the mediastinal organs In both, the extirpation of the struma by the Sauerbruch-Schumacher anterior longitudinal mediastinotomy was followed by a good result

**Clute H M, and Mason R L** The Medical Treatment of Hyperthyroidism *Ann Clin Med* 1926 1v 673

While it is generally admitted that the removal of part of the thyroid gland is the safest surest and quickest method of checking the course of hyperthyroidism the authors emphasize the importance of intensive medical treatment before and after thyroidectomy The high metabolic rate is best treated with rest As persons with exophthalmic goiter do not adjust themselves readily to rest in bed they must be persuaded to control their ceaseless wasteful movements and excited conversation

Next in importance to rest is diet It has been estimated that a man with a metabolic rate of 50+ who is doing a moderate amount of muscular work requires 6 000 calories daily to maintain his weight To furnish a diet of from 3 000 to 6 000 calories daily the patient should be given his favorite foods

Iodine is the only drug of demonstrated merit tending to reduce the basal metabolic rate in hyperthyroidism It should not be given in cases of adenoma

A very troublesome sequela of hyperthyroidism is auricular fibrillation In the authors clinic this condition has been found in about 35 per cent of the definitely toxic patients Hamilton states that paroxysmal attacks of auricular fibrillation associated with thyroid toxicity cease permanently when the toxicity is corrected This is true only of the purely thyroid heart and not of long established cardiac conditions **ARTHUR L SREFFLER, M D**

**Musser J H** Exophthalmic Goiter and Tuberculosis *Ann Clin Med* 1926 1v 620

Primary tuberculosis of the thyroid gland is very rare after puberty thyroid tuberculosis is secondary to pulmonary tuberculosis Tuberculosis is more frequently mistaken for hyperthyroidism than hyperthyroidism for tuberculosis The author has seen six cases of tuberculosis which had been treated for hyperthyroidism Symptoms common to both conditions are a loss of weight, fatigue, debility, nervousness and diarrhoea Anorexia is usually absent in hyperthyroidism but present in tuberculosis

Hyperthyroidism is characterized by marked over action of the heart, a pronounced vasodilatation, an increase in the metabolic rate, and a marked increase in the pulse pressure In tuberculosis the pulse pressure is usually low and the temperature usually rises daily In the diagnosis of tuberculosis the von Pirquet test is very valuable and the presence of crackling rales with granular breathing is suggestive **ARTHUR L SREFFLER, M D**

**Koopman, J** Conjugal and Luetic Basedow's Disease (Ueber konjugale undluetische Basedowsche Krankheit) *Wien klin Wchnschr* 1925 xxviii 1159

The occurrence of the same disease (cancer diabetes etc.) in both husband and wife is so seldom observed that no conclusion can be drawn from it Nevertheless the author regards the case of conjugal Basedow's disease which he reports in this article as of importance because of the rarity of the condition in both husband and wife and because it affords an insight into the pathogenesis of certain cases

Koopman defends the not new but apparently little known theory of the occurrence of a luetic Basedow's disease This theory has received most attention in the French literature According to Leonard 30 per cent of cases of Basedow's disease are of luetic origin It may appear very early after the syphilitic infection (three months) or very late (twenty three years) Tabes and hereditary lues may also cause it Therefore the Wassermann test should be made in every case of Basedow's disease

In cases of luetic origin iodine has often an astonishing effect Luetic Basedow's disease can be quickly cured **HIRSCH (Z)**

**Brodersen N H** Tetany Following Operations on the Thyroid Gland (Tetanie nach Operationen an der Schilddruese) *Norsk Mag f Lægevidensk*, 1925 lxxvi 1 93

In the period from January 1 1920 to June 30 1925 647 thyroidectomies were performed at the City Hospital of Drammen Tetany occurred in five cases In the 301 cases in which the operation was performed for exophthalmic goiter or adenomatous goiter with hyperthyroidism tetany occurred in four (1.3 per cent), while in the 346 in which it was done for simple goiter tetany occurred in one 0.3 per cent There were no deaths

Why the tetany occurred in these cases cannot be stated with certainty In every case in which it developed it followed a radical operation in which only a small portion of the left lobe was left behind In a few rare cases it appears to be an unavoidable complication of the radical operation Three of the patients whose cases are reviewed were 21 17 and 15 years of age a fact which possibly indicates the necessity for special care in operations on young persons The chief remedy against tetany is calcium lactate Parathyroid tablets are not at all certain in their effect **KORITZKY (Z)**

**Lahey F H** The Transplantation of Parathyroids in Partial Thyroidectomy *Surg Gynec & Obst* 1926 xlii 508

Since parathyroids are occasionally removed at operation and identified in the laboratory, they should be carefully searched for in the specimen removed at operation and if found transplanted.

The most convenient site at which to transplant them is the belly of the sternomastoid muscle. Care must be taken to see that the cavity into which they are transplanted is dry. **JAMES C BRASWELL M D**

**Simpson W M** A Clinical and Pathological Study of Fifty Five Malignant Neoplasms of the Thyroid Gland *Ann Clin Med* 1926 iv 643

Simpson presents a report on fifty five malignant neoplasms of the thyroid gland, fifty of which were carcinoma and five sarcomata. The cases in which these tumors were found constituted 4.03 per cent of a surgical series of 1,290 cases of non-exophthalmic

goiter. No malignancy was found in purely exophthalmic goiters. Seventy two per cent of the malignant tumors occurred in women. Sixty per cent were unsuspected before the histological examination.

A very hard nodule in the thyroid of a person over 30 years of age should be viewed with suspicion, especially if there is a history of relatively rapid increase in the size and hardness of a previously quiescent goiter. In the advanced stages metastasis to the lungs and bones is common.

In 30 per cent of the cases reviewed by the author the carcinoma was of the medullary type. Tumors of this type grow with the greatest rapidity and frequently recur and form metastases. In 60 per cent of the cases the tumor was an adenocarcinoma and in 4 per cent of the scirrhus type. Sarcoma of the thyroid conforms in its growth characteristics to sarcoma arising elsewhere in the body.

**ARTHUR L. SHREFFLER M D**

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS, CRANIAL NERVES

**Pauli W E and Von Redwitz E** Remarks on the Construction and Use of the Meyer Schlueter Sound (Bemerkungen zur Konstruktion und Verwendung der Meyer Schlueterschen Sonde) *Deutsche Ztschr f Chir* 1925 cxviii 343

Pauli and von Redwitz recommend the sound devised by Meyer and Schlueter for measuring the electrical resistance of brain tissue in operations on brain tumors. According to their own experience in several cases and according to reports from America it is often of great value.

The authors have changed its construction so that the electrodes may be moved toward each other and it is possible by moving them to determine the extent of a tumor and to discover very small tumors. By the use of a head piece the operator himself can determine the resistance of the tissues during the performance of an operation.

VON REDWITZ (Z)

**Von Sarbó A** A Cured Case of Fat Embolism of the Brain Following Fracture of the Leg and Simulating Progressive Paralysis (Ein geheilter Fall von FetteMBOLIE des Gehirns nach Unterschenkelbruch im Bilde der progressiven Paralyse verlaufend) *Klin Wchnschr* 1925 iv 1918

The most important sign differentiating cerebral fat embolism following fracture of a bone from other cerebral conditions is the free interval between the injury and the appearance of the cerebral symptoms. Usually signs of fat embolism of the pulmonary capillaries such as a sticking sensation in the chest, shortness of breath, and cough, occur first and from several hours to several days after the fracture there is complete loss of consciousness which occurs suddenly or is preceded by a stage of sleepiness. After severe symptoms of irritation the most varied focal symptoms may be noted.

The author reports a case of fat embolism of the brain following a complicated fracture of the leg in a man 56 years of age. The symptoms corresponded to those of progressive paralysis except that the negative result of the serological and spinal fluid examinations excluded parenchymatous syphilis. Undoubtedly the frontal and parietal lobes were chiefly affected by the embolism. Such an assumption explains the facial paralysis on the left side (focus on the right side in the anterior central gyrus), paralaxia (supramarginal gyrus), the pararthria syllabaris, the verbigitation (third frontal gyrus) and the ultimate disturbance of the total function of the frontal lobes, the disorientation for place and time and the tendency of the patient to

play clownish tricks. In the course of two months the symptoms slowly receded and a complete mental recovery resulted. LEHRNBECHER (Z)

**Davis, L** The Influence of Decompression Operations on Experimentally Produced Papilloedema *Arch Surg* 1926 xii 1004

In a large series of dogs Davis produced a most ingenious imitation cerebral tumor by introducing sterile 2 gr capsules of agar into various portions of the cerebrum and cerebellum through small burr holes. When a subtemporal or suboccipital decompression was done immediately before or after the introduction of the agar, the animals did not develop papilloedema, and survived the operation for several weeks until they were sacrificed, whereas when decompression was not done they died within a few days.

In the case of "tumors" of the cerebellum, the subtemporal decompression appeared to be quite as effective in preventing symptoms as the subtentorial decompression. The author questions the correctness of the current opinion that supratentorial decompression is of no value in cases of subtentorial tumor.

This study indicates that decompression will alleviate choked disk in cases of tumors of the brain. Davis states expressly however, that he does not favor a palliative decompression if it is possible to localize and attack the original lesion.

TRACY J PUTNAM M D

**Winkelbauer A and Brunner, H** The Treatment of Traumatic Frontal Brain Abscesses (Zur Behandlung der traumatischen Strahlnabscesse) *Arch f klin Chir* 19 5 cxxvii 160

Seven cases of frontal brain abscesses are reported. The abscess was correctly diagnosed in five. Psychic changes are of great aid in the diagnosis. They were noted in four of the authors' cases. They consisted in a tendency to play clownish tricks, a loss of ethical sense, stupor, somnolence and a decrease in the perceptive powers. In four cases the diagnosis was further supported by very severe headaches and tenderness to percussion over the frontal bone.

The temperature and cerebrospinal fluid are not very characteristic. Dizziness and vomiting (a long time after the accident) occurred in only one of the authors' seven cases. The ophthalmoscopic findings are of greater significance. Papilloedema was found twice in five cases. In the authors' opinion the most reliable signs are the nature and site of the injury and the psychic changes.

The success of operative treatment depends upon an early diagnosis. If the abscess is not recognized



the formation of pacchionian bodies. The proliferation of arachnoid takes place at weak spots in the dura particularly preformed openings such as those for the passage of the vessels. It is difficult to determine the cause of this proliferation. In one of the author's cases a purulent otitis was present.

As the patients were all old persons it is probable that there were mild processes of inflammation or irritation of the meninges congestion stasis and temporary changes in spinal fluid pressure but proliferation of the arachnoid alone could not cause the pseudo cyst. The orifice through which the arachnoid passes is plugged by it and spinal fluid cannot pass through it at least not with sufficient force to distend the dura mater. However when a vessel passes through the opening there may be enough space for the passage of spinal fluid especially when the size of the vessel is changed. The passage of spinal fluid is facilitated by obliquity of the course of the vessel. In the cases reported this was marked. Changes in the pressure of the spinal fluid also are of influence in the production of these cysts.

None of the cysts reported had caused any symptoms. This is not surprising as such cysts grow slowly and do not cause signs of compression because they are in communication with the intracranial space. Even when they are completely developed they do not crowd the epidural space because there is a limit to the capacity of the dura mater for expansion. Moreover their elongated form makes them readily adaptable to the intra vertebral space. AUDREY G. MORGAN, M.D.

**Landelius, E. Experiences with Some Spinal Intradural Tumors.** *Acta chirurg Scand* 1926 14: 180

In one case of intradural neuroma affecting the posterior nerve roots and one case of intramedullary tumor the author produced root pain in the locality of the spontaneous pains by increasing the cranial pressure during lumbar puncture by the Queckenstedt test viz compression of the veins in the neck.

In the first case the only symptoms were root pains and the segment diagnosis was made altogether from the localization of the pains after their nature and localization had been corroborated by the Queckenstedt test.

The author suggests that this observation may prove of value in the diagnosis of spinal intradural tumors at an early stage before the development of paraplegia.

### PERIPHERAL NERVES

**Felix Willy. Exeresis of the Phrenic Nerve in Pulmonary Affections.** (Die Phrenicus Ausschaltung bei Lungenerkrankungen) *Ergbn d Chir u Orthop* 1925 VIII 690

This article is a review of the most important facts concerning the history anatomy and technique of artificial paralysis of the diaphragm. The

author discusses the priority of von Goetze. In 1914 Friedrich recommended an approach to the dome of the pleura in order to reach deep afferent fibers of the nerve. But Clin in 1920 recommended disruption of the nerve if possible below its cervical roots. The suggestion of Walth and Felix made at about the same time to approach the subclavian vein in order to disrupt the accessory phrenic lies also within the realm of technical possibility. If the scalenus anterior muscle is followed downward it is usually possible to reach well down to the vein. Pulling upward on the nerve stem may move the accessory phrenic which passes in front of the vein and thus identify it for division.

With full knowledge of the so-called radical phrenicotomy of von Goetze the work of Felix was completed in 1922 and contains the results of his research conducted after 1919 on the anatomical experimental and clinical aspects of the phrenic nerve and exeresis of this nerve. Up to 1923 von Goetze described his method as phrenicotomy plus division of the subclavius. On anatomical grounds the staff of the Munich clinic have been unable to recognize this procedure as radical and have repeatedly expressed this viewpoint. It does not take into account the frequent variations of the phrenic on the other side of the subclavian nerve. Only since this criticism from the Munich clinic has von Goetze presented his procedure with a changed technique (Surgical Congress of 1924).

The method he uses today is truly radical since he now divides not only the subclavian nerve but also other nerve branches which lie in the vicinity and follow a similar course (von Goetze's subclavian accessory roots). All argument as to priority is groundless since methods for the complete division of the phrenic were known before either the Felix or the von Goetze method appeared. It is emphasized that the operation though simple is associated with considerable danger because it is frequently performed by poor surgeons. One of Friedrich's patients died from air embolism in the internal jugular vein. In the Munich clinic there were two cases of air embolism with a favorable outcome. Sauerbruch mentions among a total of 500 operations two fatal hemorrhages due to a simple phrenicotomy. Mistakes have been made repeatedly in the identification of the nerve. At the Munich clinic the sympathetic was divided once with a consequent Horner syndrome. The Sauerbruch clinic has received reports of seven injuries of the vagus—one caused by a skilled surgeon—an injury of the thoracic longus nerve with partial paralysis of the serratus anticus muscle and an injury of the thoracic duct and the esophagus.

At the Munich and Zurich clinics there have been performed to date 250 phrenicotomies and exereses. In no instance has there been any hemorrhage which could be ascribed to the twisting out of the nerve. Neither has the operation ever been followed by the bursting of a lung abscess or the development of a pneumothorax as reported by von Goetze.

Both procedures for artificial paralysis of the diaphragm—von Goetze's operation and the exeresis—are effective but exeresis is technically more simple.

According to the findings of investigations made to date the effect of the permanent paralysis of the diaphragm on the function of important abdominal and thoracic organs is quite harmless. The contention of the Sauerbruch school that phrenicotomy in general cannot be admitted to have an independent importance in the compression therapy of pulmonary tuberculosis is held to be correct, contrary to the opinions of von Goetz and Frisch. In sixty cases treated by phrenicotomy alone at the Munich clinic the operation was followed by rapid clinical improvement, but actual healing did not occur in any instance. Complete disappearance of a cavity as seen by von Goetze is very rare and should not influence the general prognosis. At the Munich clinic the occasional arrest of expectoration with considerable diminution in the size of small cavities subsequent to paralysis of the diaphragm is ascribed to the mechanical displacement or obstruction of the cavity outlet.

On the basis of his experience at the Munich clinic during the past ten years the author regards as of no importance the injuries supposed by Brauer to occur after permanent paralysis of the diaphragm in pulmonary conditions. Exeresis is contra indicated, however, by severe cardiac pains. Whether long continued tachycardia which has been noted occasionally after exeresis (in Munich, two or three times in 250 cases) is to be ascribed to the twisting out of the nerve or to the high position of the diaphragm, is still undetermined. The author believes the latter is responsible. Emphysematous rigidity of the thorax is also a contra indication. The danger of spreading pus into the mediastinum by pulling the nerve out in the presence of a tuberculous empyema is not to be feared if force is avoided. In several cases of bronchiectasis treated by artificial paralysis of the diaphragm at the Munich clinic definite improvement resulted but was only temporary.

GRAF (Z)

Gergely, J. and Markovits S. Clinical Lessons from 100 Operations on the Phrenic Nerve (Die klinischen Lehren aus 100 Phrenicus Operationen). *Gyógyászat* 1925 Lxv, 922

Exeresis of the phrenic nerve gives the best results in cases with the indications for pneumothorax that is cases with a free thoracic cavity, a freely movable diaphragm and focal propagating and for the most part exudative caseous pulmonary processes. In cases of basal or bilateral disease its results are less favorable.

The curative effect of the procedure is due not only to compression but also to immobilization and the elimination of unilateral traction. It gives very excellent results when it is carried out simultaneously with artificial pneumothorax. Permanence of the pneumothorax is assured by it.

In cases of non tuberculous processes of the lower lobe (abscess bronchiectasis), it causes only symptomatic improvement at the most. In empyema, it considerably reduces the size of the cavity.

Of eighty nine cases in which exeresis of the phrenic nerve was done forty eight showed a good result, sixteen, symptomatic improvement, nine no change and four an aggravation of the condition. Twelve patients died. MUKAI (Z)

## SYMPATHETIC NERVES

Mandi F. The Effect of Paravertebral Injections in Angina Pectoris (Die Wirkung der paravertebralen Injektion bei Angina pectoris). *Arch f klin Chir* 1925 CXXXVI 495

Following a brief discussion of the syndrome of angina pectoris and the various theories as to the cause of the condition the author reports sixteen cases in which he made paravertebral injections of  $\frac{1}{2}$  per cent novocain or  $\frac{1}{4}$  per cent tutocaine solutions. The injections were made from the first to the fourth dorsal vertebrae or at one or two of these points and 15 c cm. of the solution were injected at each point. No adrenalin was added to the solution.

In twelve cases good results were obtained and in six of these the effect has been lasting. These results justify the inclusion of paravertebral injections among the therapeutic measures employed for angina pectoris. However the injections are recommended only for cases in which medical measures have failed.

The effect of the injections depends upon the exclusion of the sympathetic paths, the sensory supply of the heart and aorta. The author does not state whether the parasympathetic paths are also interrupted. The long continued effect of a single paravertebral injection (the injection was repeated in only one case) Mandl explains by the assumption that the interruption of the sensory paths produced a marked disturbance in the interplay between the sympathetic and parasympathetics. The failure of the treatment in some cases he attributes to the choice of the wrong segment for the injection or the use of a faulty technique. In conclusion he states that when care is taken the procedure is without danger.

STAHL (Z)

Melzner E. An Experimental Contribution on the So called Periarterial Sympathectomy (Experimenteller Beitrag zur sogenannten periarterellen Sympathektomie). *Arch f klin Chir* 1925, CXXXVI 427

Following a periarterial sympathectomy on the renal artery of a dog the author was unable to find in the kidney the slightest microscopic evidence of change. The examinations covered a period of from three to seventy days following the operation. The kidney with its extremely sensitive tissues remained practically unaffected by the apparently very marked changes in the peripheral circulation caused by the periarterial sympathectomy. Melzner says

How much less an effect can be expected in the extremities whose tissues have a so much grosser anatomical structure? He believes that his experiments prove again that the innervation of the blood vessels is segmental

STAUT (Z)

### MISCELLANEOUS

Polissadowa X Restoration of Innervation in Skin Transplants (Ueber die Wiederherstellung der Innervation bei Hauttransplantationen) *Zentralbl f Chir* 1925 li 2166

The author made clinical studies with regard to the restoration of innervation in twenty cases of skin transplantation. In most of them a rhinoplastic operation with the use of a pedunculated flap had been done. Previous to its separation the flap retained sensibility only in the vicinity of its pedicle and immediately after its separation it lost all sensibility. The first sensations to be noted after the transplantation were those of touch in response to pin pricking. Pain was felt only after a month. Sensibility began at the periphery of the flap adjacent to normal tissue and progressed slowly toward the center at the rate of about 0.5 to 1.0 cm per month. Sensitiveness to temperature was the last to be noted.

In addition the author made histological investigations in a large number of cases with regard to the presence of nerve elements. He found that the growth of nerves runs about parallel with the in-

crease in sensibility. Even after a long time the flap had very few nerve fibers as compared with normal skin. Medullary nerve fibers were found in only one case and nerve end apparatus were not demonstrable even at the end of a year.

VOLLHARDT (Z)

Boyd W Three Tumors Arising from Neuroblasts *Arch Surg* 1926 xli 1031

Three cases of tumor in children are reported. In the first case the origin of the neoplasm appeared to be in the medulla of both suprarenals and there were metastases in the liver, lymph glands, ribs and cranium. The tumor was composed mainly of well differentiated cells together with small more primitive cells and bundles of neurofibrils but without rosettes.

In the second case there was a ganglioneuroma arising in the ganglia of the left abdominal sympathetic chain and associated with metastases in the ribs and cranium and maldevelopment of the left suprarenal medulla.

In the third case a neuroepithelioma of the retina had metastasized to the liver and other viscera.

All three neoplasms may be regarded as developmental tumors arising from neuroblasts at different stages of development. The first two spread apparently by way of the lymphatics and the third by the blood stream. In all the striking metastases were in the cranium.

TRACY J PUTNAM MD

# SURGERY OF THE CHEST

## TRACHEA, LUNGS, AND PLEURA

Guy, J and Elder, H C Radlographic Exploration of Broncho Pulmonary System by Means of Lipiodol *Edinburgh M J* 19 6 25 223 269

For roentgenographic exploration of the broncho pulmonary system the authors inject lipiodol by the intercricothyroid route following preliminary anaesthetization of the parts They then guide the lipiodol into the portion of lung to be studied by having the patient assume the most favorable position therefor

Fluoroscopy is used to ascertain whether this has been accomplished, and roentgenograms are made as quickly after the injection as possible Such complications as have occurred have been of little consequence In the authors' opinion the results justify wide application of the method in the diagnosis of bronchopulmonary affections

ADOLPH HARTUNG, M D

Clerf L H Foreign Bodies in the Tracheobronchial Tree A Report of Cases in Which Bronchoscopy Was Not Done *Laryngoscope* 1926 xxvi 206

The author discusses the probability of the spontaneous expulsion of a foreign body from the tracheobronchial tree He states that before the use of the X ray statistics which showed the incidence of such expulsion to be 46 per cent were misleading because expulsion was then one of the chief indications of a foreign body Jackson estimates the incidence of spontaneous expulsion as between 2 and 3 per cent

Clerf advises against inversion of the patient because of the danger that the foreign body may become lodged in the glottis and produce asphyxiation

He mentions the many bends in the bronchial tree its entrance narrowed by the glottic chink, tracheal reflexion tending to close the glottis and the force of gravity and anatomical and physiological factors working against spontaneous expulsion

The probability of spontaneous expulsion is influenced also by the nature of the foreign body Theoretically, sharp elongated bodies will never be coughed up They usually lie point uppermost and offer little surface to the expiratory blast Heavy metallic objects especially if round tend to seek lower portions of the tree and to block the bronchus Peripheral to them air is absorbed and a negative pressure is produced Proximally, a ring of inflammatory tissue holds them down Expulsion of vegetable substances is rare probably because of the swelling of the glottis caused by their ten-

dency to lodge in the subglottic space and because of the large quantity of secretion caused by the septic bronchitis and laryngeal spasm The longer a foreign body has been in place the less the probability that it will be coughed up

Instances of the spontaneous expulsion of practically every type of foreign body are cited, but Clerf emphasizes the fact that these are exceptions and advises strongly against waiting for such expulsion In conclusion he quotes Jackson as follows

'We do full justice to our patients when we tell them that while the foreign body may be coughed up it is very dangerous to wait, and further, that the difficulty of removal increases with each hour the body is allowed to remain'

JEROME R HEAD, M D

Clerf L H Bronchoscopic Aids in Thoracic Surgery *Surg Clin N Am*, 1926 vi 281

Clerf states that bronchoscopy, while of great value in the treatment of acute suppuration in the upper and middle lobes of the lung, cannot take the place of surgery in the treatment of chronic suppuration with extensive bronchial dilatation and fibrosis or large abscess cavities situated peripherally

He reports the case of a 17 year old girl with a history of chronic coughing and the expectoration of from 40 to 90 cc daily of thick purulent sputum The pathological changes were limited to the right lower lobe Weekly aspirations resulted in a decrease in the amount of sputum and relieved the fetid odor Pneumography showed marked contraction of the lower right lobe and marked dilatation of the bronchi down to the terminal ends, little parenchymatous tissue remaining The patient's general condition has now improved to such an extent that surgical intervention is feasible

Clerf reports also the case of a 33 year old man with cough fever, and profuse expectoration due to pathological changes in the right lung Aspiration has been done six times The first bronchoscopic examination showed pus coming from the orifices of all three lobes of the lung After three aspirations the upper lobe remained clear and the condition of the middle lobe was improved, but the amount of pus remained the same and the loss of weight continued Pneumography revealed a rather large cavity in the distribution of the posterior branches of the right lower lobe and involvement of a considerable portion of the middle lobe As this collection of pus is not favorably situated for spontaneous drainage through the natural passages, external surgery will be necessary

Pneumography is a very valuable aid in the localization of a pus collection and the determination of its extent

IRA FRANK M D

**Dwoletzky J P** Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis and Its Effects on the Larynx *Ann Otol Rhinol & Laryngol* 1926 xxxv 42

The author observed that none of his patients with pulmonary tuberculosis who were treated by artificial pneumothorax developed laryngeal tuberculosis and that pre-existent laryngeal lesions were either cured or benefited by the collapse of the lung. In contrast to this finding he and others have observed that approximately 25 per cent of persons with pulmonary tuberculosis who are not treated by artificial pneumothorax develop laryngeal tuberculosis.

As he was unable to discover any statistics in the literature the author wrote letters to numerous authorities inquiring as to their observations on this matter. In this way he collected a series of 1,592 uncomplicated cases treated by artificial pneumothorax. Laryngeal involvement developed in only four. He obtained also reports on thirty-two patients with pulmonary tuberculosis complicated by laryngeal tuberculosis who were similarly treated. Of these twenty-six showed improvement of both the pulmonary and the laryngeal lesion; two died and in four the condition remained stationary.

The beneficial effect of artificial pneumothorax on laryngeal lesions is attributed to the improvement in the general condition caused by the collapse of the lung as the result of which the larynx is no longer continually bathed with bacilli-laden sputum and is relieved of the irritation caused by the cough.

JEROME R. HEAD, M.D.

**Feiermann J** The Care of the Bronchial Stump Following Amputation of the Lung (Zur Versorgung des Bronchialstumpes nach Lungenamputation) *Arch f Klin Chir* 1925 cxxxvii 300

In thirty operations on dogs the author tested the three methods of treating the bronchial stump after amputation of the lung, namely the method of Tiegel that of Friedrich and that of Meyer. In Meyer's method the stump is crushed and ligated and then buried by peribronchial sutures similar to Lembert sutures. The author considers this method the best, but in burying the stump he uses a suture similar to the one used for the stump of the appendix which is known as a diagonal suture.

Recently in doing a resection of the lung in three dogs he divided the bronchus according to the method of Melnikoff and united the two branches end to end. The uniting sutures were peribronchial and similar to Lembert sutures. Dogs operated upon in this manner survived for almost three months whereas those operated upon by the methods previously used survived at the longest for only seven days.

In a modification of this method which has been used by Melnikoff in investigations on the cadaver the smaller bronchus is fitted into the larger one for a distance of from 1 to 1.5 cm. after the removal of the mucosa.

The author considers the problem of the care of the bronchial stump as solved experimentally but reminds us that the condition in a healthy animal differs from that in the diseased human organ: m.

GLASS (Z)

**Miller W S** A Study of the Human Pleura Pulmonalis Its Relation to the Blebs and Bullae of Emphysema *Am J Roentgenol* 19 6 xi 399

During the past year several lungs used in studies of pulmonary tuberculosis have presented a peculiar wrinkled appearance of the pleura over more or less circular areas from 1 to 5 cm in diameter. No adhesions were attached to them. The pleura was freely movable over the underlying pulmonary substance a fact which tended to differentiate the blebs from emphysematous bullae. With a view toward explaining this finding a study was made of the pleura with special reference to the elastic fibers. It was found that in normal pleura anastomosing fibers extended between the network of elastic fibers in the walls of the alveoli and the elastic fibers within the areolar and elastic layers of the pleura whereas when a bleb was present these anastomosing fibers were ruptured and the pleura was separated from the walls of the underlying alveoli.

In the cases studied blebs were associated with a well marked emphysema. Rupture of the walls of a dilated alveolus undoubtedly allowed the air to enter the areolar tissue and dissect the pleura from the underlying lung. Its extension may be arrested where the septa marking out a secondary lobule join the pleura or it may extend over a number of secondary lobules.

During life the cavity of a bleb is filled with air. The negative pressure within the thorax causes it to project beyond the level of the surrounding pleura. With the cessation of respiration there is no longer an inflow of air to keep the thin-walled space distended and when the thorax is opened at an autopsy the negative pressure becomes a positive pressure and the bleb is practically emptied of air, this giving rise to the wrinkling of the pleura which has been described.

In conclusion the author suggests that some of the annular shadows mentioned in roentgen literature may have been due to blebs.

ADOLPH HARTUNG, M.D.

**Carlson E and Bunnell S** Can Pleural Effusions Following Thoracotomies Be Prevented by Artificial Pneumothorax? *Arch Surg* 19 6 xii 919

The authors have found that the dog can live for a short time with considerable positive intrapleural pressure. Eventually however it succumbs to exhaustion.

Pleural effusion does not result invariably when the pleura is damaged. In fact in the authors' experiments it was difficult to discover a method of constantly producing fluid. Merely denuding the chest wall of the pleura was unsuccessful.

Even when, in addition to stripping of the pleura over a considerable area, a rib was sawed longitudinally so that raw bone marrow was exposed to the aspirating effect of the negative pressure, no fluid resulted. Cauterizing by heat and then immediately curetting an extensive area of pleura produced fluid in some cases, but in others produced it in only small amounts or not at all. However, when cauterization by heat alone was resorted to, as in the last five experiments, considerable amounts of fluid resulted.

Details of the operative technique and two tables showing its results are given. The following conclusions are drawn:

1. If the artificial pneumothorax is under sufficient pressure to equal the dog's greatest inspiratory effort the aspirating effect in producing pleural effusions will be prevented. Such a pressure is plainly incompatible with life, as it prevents air from entering the lungs. If even much less pressure is used the dogs will die from interference with ventilation. The experiments indicate that not enough pressure can be used in artificial pneumothorax either to prevent or to lessen the formation of pleural effusion which so frequently jeopardizes the results following thoracotomy.

2. The old procedure of producing adhesions between the visceral and parietal pleura, which was advocated by Sauerbrück and others, gives better results. Aspiration of all the air following tight closure of the chest wall and early and repeated aspiration of any fluid formed is therefore indicated. The fixation of the visceral pleura to the thoracic wall by fine catgut sutures might assist in this process.

3. Pneumothorax favors the increase and spread of pleural infection.

4. The danger from excess of pressure of pneumothorax in healthy, normal persons with a normal mediastinum is by no means of minor importance.

CARL R. STEINKE, M.D.

## ÆSOPHAGUS AND MEDIASTINUM

Clerf L. H. Cicatricial Stenosis of the Æsophagus

*Surg. Clin. N. Am.*, 1936, 31, 273

A cure of cicatricial stenosis of the æsophagus depends on the maintenance of nutrition and the use of a safe and effective method of dilatation. The fluoroscope, X-ray and æsophagoscope should be used to differentiate the condition from malignancy, other forms of æsophageal disease and aneurism. The most common cause of cicatricial stenosis is the accidental ingestion of lye. Three cases are reported.

The first was that of a 2-year-old child who had swallowed lye four months before its admission to the hospital. For four days the patient had been unable to swallow his saliva. In the author's opinion, the administration of fluids by proctocolysis and hypodermoclysis, and the performance of a gastrostomy followed by diagnostic æsophagoscopy

and possibly retrograde æsophagoscopy bouginage should result in a cure.

The second case was that of a man 34 years of age who had had difficulty in swallowing for seven months. The Wassermann test was 4 plus. Examination revealed evidence of extensive chronic æsophagitis and a tight stenosis 27 cm from the teeth. A gastrostomy was done and a string placed by retrograde æsophagoscopy. Dilatation will be carried out twice weekly until a No. 30 French bougie can be drawn up readily. The patient will then be taught to swallow a woven silk bougie the size of which will be gradually increased to Size 40. As luetic structures have a tendency to contract, the dilatation must be long continued.

The third case was that of a woman 60 years of age who drank lye five months before she was seen by the author. The X-ray showed obstruction at the level of the suprasternal notch and also 8 cm above the æsophageal hiatus. As the patient's state of nutrition remained fair a gastrostomy was not performed. Peroral æsophagoscopy bouginage was done at weekly intervals. The upper structure was rapidly dilated to admit a 5 mm. full lumen æsophagoscope and the lower structure dilated with flexible tip Jackson bougies. IRA FRANK, M.D.

Reinecke R. Report of an Unusually Large Diverticulum of the Æsophagus Adherent to the Pleura, and Its Surgical Treatment (Selten grosses pleura adhaerentes Æsophagusdivertikel und seine operative Behandlung). *Fortschr. a. d. Geb. d. Roentgenstrahlen* 1925, xxxii, 949.

The author reports the case of a man 44 years of age who had an unusually large diverticulum of the æsophagus which penetrated deeply into the thoracic cavity. As feeding through a Witzel fistula for twelve weeks did not improve the patient's poor condition the one-stage radical operation was performed. The diverticulum was approached from the right and the back. After subperiosteal resection of the ribs, an extrapleural exposure of the posterior mediastinum under positive pressure according to the method of Enderlen afforded a very good view. The thick firm diverticulum which did not contract after the separation of the adhesions was invaginated and doubly sutured over and the flap of skin muscle and soft parts then completely closed. Death occurred suddenly a day and a half later.

Autopsy revealed partial pneumothorax on the right side posteriorly, adhesions between the lung and pleura and a firm hæmorrhagic infarct the size of a pigeon's egg in the left lung. GRASIEUX (Z).

Melnikoff A. Dislocation of the Larynx and Trachea in the Extirpation of Tumors of the Cervical Portion of the Æsophagus (Zur Frage der Larynx und Trachealdislokation bei Geschwulstextirpation in cervicalen Æsophagusabschnitt). *Zentralbl. f. Chir.* 1925, lvi, 2479.

Carcinoma of the upper portion of the æsophagus often involves the posterior wall of the larynx and

trachea In the removal of the upper portion of the œsophagus in such cases it is necessary to resect the entire larynx and a portion of the trachea Because of the extensive mutilation caused by such a procedure the author has worked out on cadavers and dogs an operation in which by simultaneously displacing the larynx and trachea he removes only their posterior wall with the tumor The larynx and a part of the trachea therefore remain connected with the tissues and vessels of the right side of the neck

The defect is then covered with flaps of skin The lumina of the trachea œsophagus and pharynx are first sutured into the skin At a subsequent operation the larynx and trachea are replaced in their former positions and united above with the pharynx and below with the trachea This is best done at the time a plastic operation is performed to restore the œsophagus

The author hopes by this operation to preserve all the functions of the voice completely

DENCKS (Z)

# MISCELLANEOUS

Butler P F and Habbe J E Problems in the Diagnosis and Treatment of Metastatic Tumors in the Chest *Radiology* 1926 vi 400

While metastases of malignant tumors to the abdominal organs spine and long bones may be symptomless they are more frequently associated with ascites nerve root pains or spontaneous fractures Silent metastases are probably associated more frequently with secondary new growths in the chest than with those in any other region

The majority of patients with well advanced pulmonary metastases are free from symptoms In order to avoid unnecessary and even harmful operations in such cases greater cooperation is necessary between the surgeon and radiologist

Not all cases of metastatic malignancy in the chest are suitable for radiation therapy but when indicated it usually causes marked amelioration of the symptoms and a temporary remission of the disease

STANLEY J SEEGER M D

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Koontz A R Experimental Results in the Use of Dead Fascia Grafts for Hernia Repair *Ann Surg* 1926, lxxiii 53

The work of Sencert and Nageotte on the transplantation of dead tissue is reviewed. In twenty one operations on cats and dogs, Koontz used grafts of dead fascia which had been preserved in 70 per cent alcohol for from three to twenty one days. Auto-grafts, isografts, and grafts from different species were employed. The animals were sacrificed from two to seven months after the transplantation. All showed firm union between the dead graft and the living fascia and no evidence of obstruction. Microscopic examination revealed a close intermingling of fibers.

Large ventral herniae were produced in dogs and completely repaired by dead fascia grafts.

Heteroplastic grafts took just as well as homoplastic grafts.

The article contains a number of excellent illustrations. WILLIAM J PICKETT, M D

Weeks A, and Brooks L The Treatment of Acute Peritonitis *California & West Med* 1926 xiv 622

The advisability of drainage in acute peritonitis has been discussed for many years, and although many surgeons now use it less frequently than formerly, the authors believe it is often indicated. It aids in removing the toxins and favors the evacuation of secondary abscesses through the drainage channel. Nothing should be given by mouth as it is necessary to reduce peristalsis to the minimum.

Wet dressings as hot as the skin will bear should be applied over the entire abdomen. Abdominal distention is relieved most safely by tap water enemas or colon irrigations.

It is advisable to give a sufficient quantity of opiates to relieve the pain but a quantity sufficient to keep the patient narcotized will paralyze the bowel and reduce the oxidative processes.

Gastric lavage at intervals of three or four hours is used when the intestinal contents are regurgitated into the stomach. A duodenal tube may be kept in position for some time by strapping it after it has been properly passed. By this procedure the patient can take a considerable quantity of water into the stomach. Frequent gastric lavage begun early is essential. Five per cent sodium bicarbonate and 5 per cent glucose are given by proctoclysis as a routine and the flatus is removed by colonic irrigations. If an insufficient quantity of fluids is absorbed in this way from 1,500 to 2,000 c cm of

normal salt solution are given beneath the fascia lata and 1,000 c cm of 10 per cent glucose solution are given intravenously once or twice daily.

In cases with excessive vomiting and resulting alkalosis large quantities of sodium chloride or 50 c cm of a 5 per cent calcium chloride solution are given together with 1,000 c cm of a 10 per cent glucose solution administered intravenously, and from 1,500 to 2,000 c cm of salt solution are injected into the muscles, the bicarbonate solution then being omitted from the proctoclysis.

It is necessary in these cases to keep up the body fluids so that the blood can carry oxygen in sufficient quantities to give glucose to protect the liver function to keep up the chlorides and to maintain the stomach at absolute rest so that the bowel will be placed at rest.

The authors report a number of interesting cases, giving the history and treatment in detail. Recovery resulted in all. HAROLD M CAMP, M D

Steinberg B, and Ecker E E The Effect of Antiserum Against the Coli Soluble Toxic Substance of Bacillus in Bacillus Coli Peritonitis *J Exper Med* 1926 xlii 443

The authors carried out experiments on rabbits to determine the role played by toxins in peritonitis and to elaborate an antitoxin of the bacillus coli. Injections of the toxins of the bacillus coli obtained by centrifugalizing a beef broth culture and destroying any bacilli remaining in the supernatant fluid caused peritonitis and death.

An antiserum against the soluble toxic substance of the bacillus coli was elaborated from rabbits which were injected intravenously with the supernatant fluid of centrifugalized young cultures of the organism. When this antiserum was given intravenously to twelve rabbits immediately or half an hour after the intraperitoneal injection of five times the usual lethal dose of bacillus coli, ten of the animals survived. I EDWARD BISHKOW, M D

Sicard Robineau and Lichtwitz Roentgenographic Shadows Suggesting Calculi in Tuberculous Pelvipéritonitis (Ombres radiographiques pseudo-calculieuses symptomatiques d'une péritonite tuberculeuse) *Bull et mém Soc méd d hôp de Par* 1926 xlii 127

A woman 35 years of age entered the hospital complaining of sciatica and pain in the right lumbar region. Several years previously she had fever and became emaciated but did not cough or expectorate. Except for this attack, she had always been well. At the time she entered the hospital her temperature was normal and her general health excellent.



On X ray examination the spinal column was found normal but the roentgenogram showed two large shadows in the pelvis which suggested bladder stones. One of these shadows was in front and to the right of the last sacral vertebra. It was the form and size of a pigeon's egg and very much darker than the sacrum. The other was to the left of the fourth sacral vertebra and about the same density as the sacrum. The physical and roentgen examinations of the lungs showed nothing abnormal. Cystoscopy revealed congestion of the bladder but no stone.

At laparotomy a mass was removed from the pelvis. In this mass there were numerous caseous abscesses, some zones which were soft and other zones which were clerotic. Histological examination revealed tuberculosis.

The roentgen spots described are often seen in caseous processes in the lungs but are rarely observed in tuberculous peritonitis because of the opacity, mobility and length of the intestine and the extent of the peritoneum. They can be detected in pelvipertitonitis because the pelvic peritoneum in the pouch of Douglas is out of the way of the intestines.

AUDREY G. MORGAN, M.D.

Cutierrez A. Mobilization of the Root of the Mesentery. Its Surgical Value. (Consideraciones acerca de la movilización de la raíz del mesenterio su valor quirúrgico). *Rev. de ciruj.* Buenos Aires 19 6 v 65.

To reach the lumbosacral sympathetics, retroperitoneal tumors and stones in the ureter in the region of the iliac vessels, the author makes an incision slightly below and to the left of the root of the mesentery and displaces the latter by blunt dissection upward and to the right. This exposes the structures in the right lumbar region as far as the lower border of the third portion of the duodenum.

By pulling the great vessels over to the left toward the midline, the right lumbar sympathetic trunk may be reached and by prolonging the incision at the lower end slightly to the left and displacing the vessels to the right, the left lumbar sympathetic trunk is exposed. To reach the sacral trunk it is necessary only to continue the lower end of the incision downward.

Seven excellent illustrations render a description of the technique practically unnecessary.

JOHN W. BRENNAN, M.D.

### GASTROINTESTINAL TRACT

Dieterich W. and Rost F. The Effects of Roentgen Ray Irradiation upon the Gastric and Intestinal Secretions. (Ueber das Verhalten der Magen und Darmsekretion bei Roentgenbestrahlung). *Strahlentherapie* 1925 25 108.

To determine the effect of roentgen ray irradiation upon the secretions of the stomach and intestine, the authors carried out experiments on dogs,

using a very penetrating ray, so that the deep dosage was between 20 and 22.5 per cent. The tension of the apparatus ranged from 180,000 to 200,000 volts. The size of the field was 20 by 25 cm. and the current was between 2.5 and 3.0 ma. A filter of 0.5 mm. of zinc and 3 mm. of aluminum was used. The portions of the body not to be irradiated were well protected.

It was found that neither massive nor intense irradiation of the head or the lower portions of the body caused any noteworthy decrease in the acid or ferment content of the gastric or duodenal secretions. An occasional increase in the acid values and the pepsin content of the gastric secretion which was noted after the lapse of weeks could not be ascribed to the irradiation with certainty. Neither did direct irradiation of the stomach with heavy doses result regularly in a decrease in the acid or ferment values.

SILBERG (Z)

Von Stapelmohr S. A Case of Diffuse Acute Phlegmonous Streptococcus Gastritis Diagnosed During Life. Cured with Hourglass Stomach. (Ueber einen Fall von in vivo diagnostizierter diffuser akuter phlegmonöser Streptokokkengastritis. Heilung mit Sanduhrmagen). *Wien klin. Wochenschr.* 1925 XXXVII 1010.

The author reports a case of acute phlegmon of the stomach, a condition which is very seldom diagnosed or operated upon. The patient was a woman 48 years of age who had previously suffered with symptoms resembling those of gastric ulcer and for two days had had a temperature of 39.3 degrees C. associated with very severe pain and protective tension in the region of the stomach. The rest of the abdomen was negative and the general condition good. After the disappearance of the abdominal tension a hard mass was palpable in the left hypochondrium.

A laparotomy performed on the ninth day under the diagnosis of infected pancreatic cyst revealed a tumor like phlegmonous inflammatory infiltration of the transverse mesocolon, gastroduodenal ligament, transverse colon and omentum which extended upward to the omentum stomach which showed similar changes. After separation of a few loops of the small intestine a primary closure of the abdomen was done. Rapid recovery followed. The punctate from the wall of the stomach showed streptococci and bacillus subtilis.

When the patient was examined five years later she was free from symptoms, but chemical examination revealed absence of free hydrochloric acid in the stomach and roentgen examination showed on the lesser curvature an hourglass constriction about the width of a finger.

KOENIG (Z)

Gmelin E. The Diagnosis of Syphilis of the Stomach. (Zur Diagnose der Magenlues). *Zeitschr. klin. Chir.* 1925 CXXIII 597.

With the exception of the rectum, the gastrointestinal tract is very rarely involved by syphilis.

In the last 10,000 autopsies at Eppendorf, not one case of syphilis of the stomach was found, and in a period of forty years Fraenkel saw only four. In two of the cases seen by Fraenkel the small intestine was also involved.

A clinical diagnosis of syphilis of the stomach cannot be made with certainty but the presence of the condition may be suggested by the history, the Wassermann reaction and the results of specific treatment. The most important sign is anacidity or hypacidity.

In two cases which came to operation on Sudeck's service under the diagnosis of ulcer and carcinoma respectively a dense infiltration suggesting an inflammatory process was found. This area was not sharply delineated from the normal tissue. Macroscopically, the resected specimen showed multiple infiltrating ulcers and microscopically an infiltration of the submucosa by plasma cell and lymphoid elements and occlusion of the lumina of the blood vessels by cellular material.

Specific treatment is recommended. When the diagnosis is first made during the course of an operation, resection of the affected portion of the stomach should be done. KEMPFF (Z)

**Schmid O** The Condition of the Vagus Nerve in Cases of Gastric and Duodenal Ulcer (Ueber das Verhalten des Nervus vagus bei Ulcus ventriculi und duodeni) *Monatsschr. med. Naturgesch.* 1925 LXXV, 1904.

Bergmann first suggested the spasm or nerve origin of ulcer in 1913. His theory was based on the observation that persons with gastric or duodenal ulcer show signs of a disturbance of the sympathetic nervous system. He concluded that the primary condition is probably a reflex irritation of the vagus nerve which causes a spasm of the musculature of the walls of the stomach. Reference has been made also by numerous other writers to a relationship between disturbances of the vagus and ulcer of the stomach.

Experimental work on the subject however has given very divergent results which do not by any means always support the neurogenic theory. To prove this theory it is necessary to demonstrate changes in the vagus in cases of ulcer. In thirty cases of gastric or duodenal ulcer in which the vagus nerves were examined by the author they showed no important differences from those in the control cases. None of the findings indicated damage to these nerves with certainty. The author therefore concludes that there is no anatomical basis for Bergmann's theory of ulcer.

HIRSCH (Z)

**Delore X, Mallet Guy O and Vachey A** Multiple and Recurring Forms of Ulcer of the Stomach (Les formes multiples et récidivantes de l'ulcère de l'estomac) *Evon chir.* 1935 XXXI, 620.

Chronic ulcer of the stomach may be considered a local lesion subject to cure by local excision. For

ulcers of the lesser curvature excision is the primary treatment. For ulcers of the pylorus excision is secondary to gastroenterostomy and, after the failure of gastroenterostomy, is necessary to effect a cure. The late results are excellent. The study reported in this article was limited to the multiple and recurrent forms of ulcer constituting an "ulcer disease of the stomach." The treatment of choice for this condition also is surgical.

The following types of cases are distinguished: (1) those in which multiple ulcers (usually two) develop simultaneously or in succession; (2) those in which after the cure of an ulcer by gastroenterostomy a new ulcer appears in a different location; and (3) those in which an ulcer develops at the site of a resection (this can be properly called a recurrent ulcer).

The description of the pathological anatomy is based on forty cases. In only seven of these did the ulcers occur simultaneously in the same region. This incidence is probably abnormally low because the authors have usually found several ulcers in the same specimen, often a large one surrounded by several lesser ones. In thirty-three cases ulceration occurred at the pylorus and on the lesser curvature and in two at the pylorus and on the anterior wall. Frequently the pyloric lesion is the older of the two as shown by the progress of healing. Only once was the reverse found true.

A clinical diagnosis of multiple ulcer should not be made from either the history or the physical examination except in cases of hourglass stomach combined with pyloric stenosis.

When the ulcers occur in the same region, they may be widely excised. After wide excision of an apparently isolated lesion, examination of the specimen not infrequently reveals the more complicated pathology. When excision necessitates a pylorotomy the operation should be performed in two stages.

An ulcer of the pylorus associated with an ulcer in the body of the stomach, neither of which is causing stenosis, is usually best treated by simple gastroenterostomy. This may be expected to cure the lesion of the pylorus and favorably influence the lesion in the body. A wide excision including the pylorus and enough of the body to include the other ulcer is the operation of choice, but usually the pathological changes render the operation unjustifiably long and complicated. Under certain circumstances a gastroenterostomy may be combined with excision of the ulcer of the body. Occasionally, when there is reason to believe that the lesions are tuberculous surgical treatment is contra-indicated because of the high mortality of even gastroenterostomy.

Pyloric stenosis with an uncomplicated ulcer of the lesser curvature is an absolute indication for gastroenterostomy. If the lesions prove intractable a secondary resection is indicated.

In cases with a pyloric and a midgastric lesion the latter alone producing stenosis, it is best to

resect the entire lower portion of the stomach to a sufficient extent to include the midgastric lesion. Because of the patient's poor condition a preliminary anastomosis of the upper pouch and the jejunum may be necessary. When the patient can withstand only the simplest of operations a gastrostomy may be performed and the tube passed into the duodenum.

A double stenosis calls for radical removal of both lesions unless the general condition forbids it or the lesion of the body is too high. Under the latter circumstance a gastro enterostomy with or without a gastrogastrostomy is performed.

In the same class with these complex lesions are the ulcers which develop in another location after the cure of a pyloric ulcer by gastro enterostomy. When the secondary ulcer is in the jejunum it is usually ascribed to the technique of the gastro enterostomy, trauma, silk sutures or hemorrhage. This complication is more common than is generally supposed. It is due not to technical errors but to an ulcerative disease of the stomach, a condition often associated with tuberculosis. The secondary ulcer may develop also in the lesser curvature in spite of a gastro enterostomy. The treatment is resection.

An ulcer recurring at the site of a resection is rare. It is the more rare the more extensive the resection. The best prevention of recurrence is rigorous post operative medical treatment.

The author performs the Billroth II operation almost exclusively. He finds that the Pólya operation kinks the intestine in spite of all precautions and the Pean procedure places the anastomosis in the area from which the ulcer have been resected.

ALBERT F. DE GROIT, M.D.

**Amberger** Perforation of Gastric and Duodenal Ulcers (Ueber Perforation von Magen und Duodenalgeschwüeren). *Ztschr. f. aer. II. Fortbild.* 1925, xvii, 545.

Like others, Amberger has observed an increase in the number of cases of perforation of gastric and duodenal ulcers in recent years. During the eleven years from 1908 to 1919 he saw eighteen while in the four years from 1919 to 1923 he saw thirty-nine. In both periods 90 per cent of the patients were males and most of the ulcers were situated in the vicinity of the pylorus so that it was often difficult to determine whether they were in the stomach or the duodenum. The season of the year and trauma had no part in their causation. It is problematical whether the difference in the foods ingested or the widespread use of nicotine is responsible for the increase.

Since the prognosis is favorable only in the first twelve hours an early diagnosis is important. This is not difficult if the possibility of perforation is borne in mind. In doubtful cases it is better to do one laparotomy too many than one too few.

The treatment must be surgical. In his first cases Amberger merely closed the perforation by

suture but in his last twenty-eight cases he did a posterior gastro enterostomy with the modification of Kausch. The total mortality was 37 per cent which was extremely low. According to Amberger the mortality depends less upon the nature of the surgical procedure than upon the length of time that elapses between the occurrence of the perforation and the operation.

SIMON (Z)

**Berner J. H.** Internal or Surgical Treatment of Bleeding Gastric Ulcer? (Interne oder chirurgische Behandlung blutender Magengeschwüre?). *Norsk Mag. f. Laegevidensk.* 1925, lxxvii, 1329.

During the period from 1914 to 1923 the author treated 126 cases of gastric and duodenal hemorrhage. Thirty-eight of these he excludes from this review because the bleeding was mild and not associated with marked anemia. In the eighty-eight others there were thirteen deaths, a mortality of 14.6 per cent. The patients who died ranged in age from 7 to 63 years. Eight were females. Ten cases came to autopsy. In no case of ulcer was there a perforation.

This series of cases shows that death due to bleeding from an ulcer is very rare. Hemorrhage from other causes seems to be fatal more frequently. Three of the deaths in the author's cases were due to varicose gastric hemorrhage associated with liver disease, one was due to hemorrhage caused by a carcinoma and two resulted from hemorrhage due to a hemorrhagic diathesis caused by infection (leukemia). Of these cases none could have been cured by operation. An ulcer was found at autopsy in only four.

The internal treatment of bleeding gastric and duodenal ulcer gives such good results so far as life is concerned that surgical measures are not necessary. At any rate when a patient is moribund the case should not be turned over to the surgeon in order that if death follows a futile operation the surgeon may share in the responsibility. Instead it would be better to adopt Finsterlin's practice of operating in every case of bleeding gastric ulcer.

KORITZINSKY (Z)

**Oehnell H.** Experiences with the Parenteral Injection of Albumin in Gastric Duodenal and Jejunal Ulcers (Erfahrungen ueber parenterale Eiweissbehandlung bei Magen Duodenal und Jejunalulcus). *Stenska Laekaridningen* 1925, xvii, 897.

Since 1923 the author has treated thirty-one cases of ulcer with novoprotein. Twenty-nine were ambulatory cases. The reactions were not as severe as those described by German physicians.

In the cases of Group 1—those not previously treated for ulcer—the treatment resulted in a subjective cure in fifteen and failed in two. In Group 2—cases in which an ulcer diet had been given previously—it gave a subjective cure in seven and failed in three. Only four cases showed a recurrence after two months.

Important for the success of protein therapy are dietary measures and rest after meals. Ambulatory treatment is to be recommended only for patients whose living conditions are good.

The decision as to the effect of novoprotein treatment must almost always be subjective. While this treatment contributes toward a cure in a certain percentage of cases it does not by itself constitute an ideal method for the definite cure of ulcer. Hereafter Oehnell intends to place chief reliance on the old methods with rest in bed using ambulatory novoprotein treatment only in cases in which the patient's circumstances indicate it.

GERLACH (Z)

**Heyd C G. Carcinoma of the Stomach. Resection Implantation of the Duodenum into the Pancreas.** *Ann Surg* 19 6 lxxviii 546

The patient whose case is reported was a man 43 years of age who gave a history of loss of weight, weakness, cramplike pains in the epigastrium several hours after eating and tarry stools. The X ray showed an irregularity on the mesial surface of the stomach and an arrow canalization through the distal portion of the pylorus.

Operation revealed an infiltrating carcinoma of the distal third of the stomach and protruding through the patulous pylorus an annular carcinoma with involvement of the lymph glands along the lesser curvature of the stomach and between the duodenum and pancreas.

A subtotal resection of the stomach, pylorus and first portion of the duodenum was done and a Billroth II operation performed. As there was insufficient duodenal tissue for an inversion, the stump of the duodenum was sewed over and implanted into the peritoneum of the pancreas. The operation was followed by the development of a localized empyema, evidently secondary to a subpleural abscess which was probably of embolic origin. This was drained. The gastric wound healed thoroughly and the patient was discharged from the hospital thirty-three days after the operation on the stomach.

I EDWARD BISKROW, M D

**Hanssen F S. The Results of Surgical Treatment of Gastric Cancer.** (Resultate der chirurgischen Behandlung des Magenkrebes). *Norsk Mag f Lægevidensk*, 19 5 lxxvii 1305

Hanssen reviews 280 cases of gastric cancer which were treated in the period from 1909 to 1933. One hundred and ninety-one of the patients were men. In 25.4 per cent of the cases a gastrectomy was done with an operative mortality of 8.45 per cent. In 26.1 per cent a gastroenterostomy with an operative mortality of 21.0 per cent and in 10.3 per cent an exploratory laparotomy with an operative mortality of 16.3 per cent. In 2.9 per cent various palliative operations were done and in 26.3 per cent no operation was performed.

Of fifty-one patients subjected to gastrectomy more than three years ago, fifteen (29.4 per cent)

lived three years or longer after the operation but eight of them died from recurrence of the carcinoma from three to seven years after the operation. Seven patients were still alive from three and one half to fifteen years after the operation, six were cured and one patient who was operated upon seven years ago is now suffering from pernicious anemia.

The length of time between the appearance of the first symptoms and the patient's admission to the hospital was on the average the same for those operated upon radically later as for those operated upon otherwise. The duration of life after operation averaged 658 days in cases of gastrectomy, 225 days in cases of gastroenterostomy and 127 days in cases in which an exploratory laparotomy or no operation was performed.

KORITZINSKY (Z)

**Gosset A and Thalheimer M. Pulmonary Complications in Gastric Surgery.** Autohæmorrhagic therapy. (A propos des complications pulmonaires dans la chirurgie gastrique autohémotherapie). *Bull et mem Soc nat de chir* 19 6, li 193

The pulmonary complications which frequently follow gastric operations are usually mild but occasionally may be quite severe. In 248 cases in which Gosset and his assistants performed a gastric operation in 1925 there were seven fatal pulmonary complications. In three in which an autopsy was performed a massive pneumonia was found.

Clinically the pulmonary complications were of two types. In one the temperature rose the first evening to about 39 degrees C and the chest became filled with coarse rales but defervescence occurred after one or two days. In the other the temperature rose on the third or fourth day and remained persistently elevated while the signs of a true bronchopneumonia developed in the chest. In some cases the expectoration became fetid indicating the presence of gangrene and in one case severe hæmoptysis occurred. The treatment of these complications is briefly discussed.

Following Vorschuetz and de Graser, the authors treated seven cases of pulmonary complications by injecting the patient's own whole blood. In three of these cases the complications followed a gastric operation. From 20 to 30 cc of blood drawn from an arm vein were re-injected into the muscles of the thigh. Usually the temperature fell after about twenty-six hours and simultaneously the auscultatory signs began to disappear. This result could not be obtained after the third day of the infection. In no instance did the injections have any untoward effect.

LAWRENCE JACQUES, M D

**Delore X, Creyssel J and de Rougemont J. Pre-Operative and Postoperative Care in Stomach Operations.** (Les soins pré et post opératoires dans les interventions gastriques). *1 resse med* Par 19 5 lxxviii 1410

In addition to the ordinary pre-operative care given in any case in which a laparotomy is to be

performed the authors believe that when a gastric operation is indicated pre operative gastric lavage should be done except in a few rare instances. The objection sometimes urged that it shocks the already weakened patient is not tenable since experience has shown that the weakest patients bear lavage very well and these are the ones that would be most injured by the absorption of retained gastric fluid. If lavage is performed gently and slowly with hot liquid there is no danger that it will cause hæmorrhage except possibly when copious hæmorrhage of red blood has already occurred from the ulcer. It should be done in the evening before the operation and followed by almost complete abstinence from food.

In addition the mouth and teeth should be carefully disinfected for several days before the operation and if necessary fluid should be supplied by repeated injections of physiological salt solution. If diuresis is low (100 to 800 ccm. of urine for example) glucose solution should be given. Roentgen examination should be avoided the day before the operation unless it is absolutely necessary. The presence of bismuth in the stomach during operation is troublesome and seems to favor separation of the sutures.

Postoperative gastric lavage is very beneficial when indicated but should not be practiced routinely to prevent possible complications. The chief essential in the postoperative care of the normal case is nutrition. It has been the custom to give nothing but liquid for several days but semiliquid food may be given on the second or third day. This may save the lives of patients who otherwise would die of acute inanition and dehydration with secondary toxic symptoms due without doubt to arrest of kidney elimination. Of course the feeding depends upon the indications in the particular case. In a case of non stenotic ulcer treated by simple gastro-enterostomy fasting will do no harm while in a case of stenosis from tumor nourishment should be given as soon as possible.

The most frequent postoperative complication is hæmorrhage into the stomach. This is generally shown by the repeated vomiting of small amounts of liquid mixed with dark blood. The treatment is hot gastric lavage which not only removes the blood but usually restores the muscle tonus. If instead of regaining its tonicity the picture of acute dilatation develops evacuation and hot lavage are indicated but if true peritonitis has developed lavage will do no good and the ordinary treatment for peritonitis should be given.

Sometimes a vicious circle is established and at the end of the first or the beginning of the second week the patient begins to have uncontrollable bilious vomiting. Lavage may be tried but if it fails and the symptoms grow worse operation must be performed at once. Two other complications which require operation are occlusion by the button and secondary closure of the opening by cicatricial contraction. The former occurs between the

twelfth and twentieth days when the anastomosing button is expelled and the latter generally at the end of from one to three months but sometimes later.

AUDREY G. MORGAN, M.D.

Butler E. and Delprat G. D. Intestinal Obstruction. *California & West Med.* 1926 xiv, 488.

This article is based upon ninety three cases of intestinal obstruction operated upon at the San Francisco Emergency Hospital with a mortality of 34.4 per cent. The treatment given in such cases is as follows:

One thousand cubic centimeters of a 10 per cent glucose solution are given intravenously and if the patient is toxic and dehydrated very slowly. Hypodermoclysis, Weeks drip and gastric lavage are employed if the operation is delayed.

The field of operation is dry, shaved, scrubbed with ether and alcohol and painted with a 5 per cent alcoholic solution of picric acid. Ether anesthesia is used when the cause of obstruction is undetermined as in cases of internal hernia, volvulus or adhesions while nitrous oxide-oxygen or local anesthesia is employed when the obstruction is produced by a strangulation. Enterostomies are usually done under local anesthesia. During the operation normal salt solution is given subcutaneously into the axilla or deep into the muscles of the thighs if the surgeon deems it necessary.

If the cause of the obstruction is not evident at once the hand is introduced when the peritoneum is opened and a search is made for the site of the obstruction. Any band of adhesions, volvulus, thickened bowel, tumor or fixed bowel is usually palpated immediately. This procedure very often does away with unnecessary handling of loops of distended bowel.

Matthews believes that enterostomy in the first loop of jejunum and immediately above the obstruction if there is any damage to the muscular wall should always be performed particularly if considerable vomiting has occurred.

After the operation in the authors' cases the nurse is instructed to flush the catheter with normal salt solution every two hours or if it becomes plugged more frequently. The catheter is connected with a bottle hanging on the side of the bed. The quantity of fluid that will be drained from the upper jejunum in the first twenty-four hours is large. If the drainage is continuous the toxic condition rapidly improves and vomiting seldom occurs. Fluids are supplied to the tissues intravenously if necessary but otherwise by subcutaneous and intramuscular injection.

Weeks drip three hours on and one hour off is begun immediately upon the patient's return from the operating room. The first fluid that enters the rectum contains 2 dr. of tincture of digitalis. Hot compresses to the abdomen are comforting and promote early peristalsis. The authors never give pituitrin until peristalsis has begun. Morphine sulphate should not be withheld as the patient must

be kept comfortable. The enterostomy tube is removed as soon as peristalsis is active and the bowels have moved.

In none of the authors' cases has there been any disturbance from the fistula after the removal of the enterostomy tube. **CARL R. STEINKE, M.D.**

**Perlmann, J.** Clinical Contributions on the Pathology and Surgical Treatment of Intestinal Obstruction (*Klinische Beiträge zur Pathologie und chirurgischen Behandlung des Darmverschlusses*) *Arch f klin Chir* 1925 cxxxvii 245

In 215 cases of ileus operated upon during twenty years there were 200 cases of mechanical ileus and ten cases of adynamic ileus. Eighty per cent of the patients with mechanical ileus were males. In the 111 cases of volvulus the ratio of males to females was 8 to 1. These constituted 50 per cent of the total number of cases of ileus. The mortality was quite high—in the total number of cases 58 per cent and in the cases of volvulus of the small intestine 70 per cent.

Obturation ileus should be treated operatively as soon as possible. The relatively rarely observed intussusception which occurred in nineteen cases is much more common than is generally believed but is too infrequently diagnosed in children. This fact Perlmann believes is responsible for the high mortality from intestinal obstruction in Russia.

Of the operative measures in ileocolic invagination reduction of the invagination gives the best results.

Great emphasis is laid upon the difference between strangulation ileus and obturation ileus. In the former there is an associated constriction of the mesentery.

In regard to the etiology of volvulus it was observed that this condition occurred very frequently during the month of August when during the day, the peasants undergo great bodily exertion in gathering the crops and eat nothing and at evening fill their previously empty gastro intestinal canals with large amounts of vegetable food. The high mortality in cases operated upon is attributed to the already existing peritonitis due to the patient's delay in coming to the surgeon.

Attention is called to the relatively slight symptoms particularly at first in thirty five cases of volvulus of the sigmoid flexure. In volvulus of the sigmoid flexure the author regards detorsion as the method of choice, and in suitable cases performs an anastomosis to resection. **HOOK (Z)**

**Wolf, C. G. L., and Canney, J. R. C.** The Treatment of Ileus by Choline. *Lancet* 19 6 cxx 707

Following up experiments in Magnus laboratory and the work of Klee and Grossmann in the Romberg clinic in Munich the authors studied the clinical effects of choline hydrochloride in the treatment of ileus.

The clinical records of four cases treated with choline tend to support the experimental data and

show that intestinal contractions can be easily induced.

Therapeutic doses of choline do not seem to be toxic. The drug is administered intravenously in normal saline solution and should be given slowly. **WILLIAM E. SHACKLETON, M.D.**

**Bolling, R. W.** Chronic Irreducible Intussusception in a Twelve Months Infant. *Resection* *Ann Surg*, 1926, lxxviii, 545

Bolling reports the case of a year old infant who was suddenly seized with an illness characterized by vomiting, irritability, the passage of dark blood and mucus by rectum and distention of the abdomen. The vomiting and bloody stools ceased and the distention gradually became less but the irritability continued.

When the child was seen by Bolling two weeks later it did not appear acutely ill but was apathetic and somewhat dehydrated. Examination revealed an elongated mass in the upper part of the abdomen on the right side and extending across the midline. X-ray examination after a bismuth enema confirmed the diagnosis of chronic intussusception.

At operation an intussusception of the ileocecal region into the splenic flexure was found. Reduction was possible only to the upper portion of the ascending colon. Resection of the distal ileum, the cæcum, and the ascending colon was done and followed by a colic anastomosis of the ileum and transverse colon. Recovery resulted. **I. EDWARD BISHKOW, M.D.**

**Hertz, J. and Basset, A.** Cases of Acquired Periduodenitis (Observations de périduodénite acquise) *Bull et mém Soc nat de chir* 1925 li 1010

In eight of eleven cases of periduodenitis the infection had its origin in the appendix and in three it began in the gall bladder. It reached the periduodenal region by way of the lymphatics and glands and the adhesions formed around inflamed glands. In cases of periduodenitis it is therefore important to search for appendicitis, and in cases of appendicitis to look for periduodenitis. When at operation in cases of periduodenitis the cause is not evident in the duodenum or the neighboring organs the appendix should be examined through the same incision and should be removed if it is found diseased.

In the liberation of adhesions heavy bands should be divided between ligatures, and the area should be peritonized as completely as possible. The use of a free omental graft for the peritonization is rarely successful on account of the attenuated infection and the operative site.

When the gastroduodenal disturbances are marked or are likely to recur as the result of the reformation of adhesions, when the adhesions are difficult to liberate or cannot be liberated completely, and when it is impossible to obtain perfect peritonization gastroenterostomy or duodenoduodenostomy should be done.

**WALTER C. BURKET, M.D.**

**Bolling R W Complete Congenital Obstruction of the Duodenum Duodenostomy at Nine Days** *Ann Surg* 1926 LXXIII 543

In the case of an infant weighing 6 lb 9 oz at birth and 5 lb when it was 9 days old persistent vomiting occurred and the X ray showed complete obstruction of the duodenum. At operation the duodenum was found dilated to two thirds the size of the stomach.

An anastomosis between the duodenum and the jejunum was done anterior to the colon. After a stormy convalescence the child made a good recovery. I EDWARD BISHAW M D

**Kaplanow R The Experimental Production of Duodenal Ulcer by Exclusion of the Bile from the Intestine** *Ann Surg* 1926 LXXIII 614

In the experiments reported the fundus of the gall bladder was implanted transcortically into the pelvis of the right kidney and when healing was complete the flow of bile was entirely diverted into the urinary tract by ligation and division of the common duct.

Of forty three animals treated in this manner seventeen developed typical duodenal ulcers. The lesions were single or multiple and situated usually in the vicinity of the ampulla of Vater. They bore no relationship to the mesenteric border of the intestine. They ranged from minute lesions to ulcers measuring from 1 to 2 cm in diameter. They had a punched out appearance, the edges overhanging. Frequently they extended through to the serosa. Their microscopic appearance was that of the subacute or chronic peptic ulcer in man.

These experiments showed that duodenal ulcers can be produced without trauma to the intestinal wall and may be caused in dogs not previously diseased. Whether they preceded or followed the nutritional disturbances incident to the exclusion of bile could not be decided. Further experimentation will be necessary to learn the details of the processes leading to their formation.

LAIL C. ROBITSHEK M D

**Hyden R L and Orr T G The Effect of Jejunostomy in Experimental Obstruction of the Jejunum of the Dog** *J Exper Med* 1926 LXXIII 483

The authors carried out experiments on twenty five dogs to determine the effect of jejunostomy alone and combined with the administration of sodium chloride on the chemical changes in the blood and the duration of life in cases of high jejunal obstruction.

Obstruction was obtained by dividing the jejunum and invaginating the ends. The jejunostomy was done by the Witzel operation. The following conclusions are drawn.

1 Jejunostomy does not prevent the development of the chemical changes in the blood which are characteristic of obstruction of the jejunum in the dog.

2 Jejunostomy following experimental obstruction of the jejunum does not prolong life. There is some evidence that early jejunostomy may shorten life.

3 The treatment of jejunal obstruction with sodium chloride solution tends to prolong the life of animals regardless of the performance of jejunostomy. I EDWARD BISHAW M D

**Flechtenmacher C Jr Radical Operation for Postoperative Peptic Ulcer of the Jejunum with Resection of the Colon and a Contribution on the Choice of Operative Procedures for Gastric Ulcer** (*Zur Radikaloperation des Ulcus pepticum jejuni postoperativum mit Kolonrektion zugleich ein Beitrag zur Wahl der Operationsmethode des Ulcus ventriculi*) *Wien med Wchnschr* 1925 LXXV 2581

The author advocates resection for peptic ulcer. For gastric ulcer he prefers the Billroth I operation although the Billroth II operation gives equally good results. The treatment of peptic ulcer of the jejunum should be radical surgery. The surgeon should not hesitate to remove considerable tissue even the transverse colon. Dietetic after treatment is of importance. Gastroenterostomy guarantees neither the healing of an ulcer nor permanent freedom from symptoms and it does not always protect against recurrence or subsequent perforation or hemorrhage. Moreover it permits the confusion of callous ulcer with carcinoma and is often followed by peptic ulcer of the jejunum.

The author reports several cases showing the excellent results given by resection even in the cases of patients who are in poor condition. He admits however that recurrence may develop even after a radical operation. He believes that when this occurs the tendency to form ulcers is so strong that the condition is incurable by surgery.

For the operation Flechtenmacher prefers local anesthesia of the abdominal wall and anesthesia of the splanchnic nerve induced by Braun's method. He believes that the serious pulmonary complication which occurred in one of his cases could have been prevented if instead of inducing anesthesia with chloroform and ether after making the incision (which was his practice in the cases of the more sensitive patients) he had relied entirely upon the local and splanchnic anesthesia. COLLEY (Z)

**Duettmann Recurrent Appendicitis Following Appendicil Abscesses** (*Ueber Appendicitis rezidive nach appendicitiden Abscessen*) *Muenchener med Wchnschr* 1925 LXXV 1870

The author accepts the opinion held at the Giessen Clinic regarding the two stage operation for appendicular abscesses and has abandoned the one stage radical procedure. In 36 cases treated solely by incision of the abscess there were only three deaths a mortality of 0.8 per cent. Of the 314 (86 per cent) patients who came to the secondary operation only one died a mortality of 0.3 per cent. The total

mortality was therefore about 1.09 per cent which is very low as compared with the mortality of the one stage operation (Wolff, 10 per cent Noetzel Ruediger 10.2 per cent, Dewes 6.8 per cent)

When the appendix is not removed at the first operation, new attacks of appendicitis are not rare. Recurrences have been known to develop as long as nine years after the incision of an abscess. Of the patients whose cases are reviewed by the author thirty five (9.6 per cent) came for a second treatment for abscess and twelve (3.3 per cent) for a third treatment. All of these were patients who did not return for the second stage of the two stage operation.

Two hundred and eighty five patients (78.3 per cent) appeared for the secondary appendectomy after a period of three or four months. Eighteen who returned later were all reoperated upon under the diagnosis of acute appendicitis. In most of these cases a severe inflammation was found.

Of the 285 cases operated upon secondarily after a period of three or four months, total obliteration of the appendix had occurred in only eleven. Acute inflammation was found in sixty five and chronic inflammation in seventy two. In twenty five of those with chronic inflammation there was obliteration of the proximal portion of the appendix with dilatation of the peripheral portion by pus. In seventy three cases the tip of the appendix was obliterated but the proximal portion still showed a good covering of mucous membrane. In two cases fistulae had formed.

Duettmann emphasizes the fact that in all patients operated upon twice or three times for abscesses the appendix was surprisingly well preserved. Therefore, repeated abscess formation does not always cause obliteration.

He therefore agrees with Kummel that a radical operation is always best. In view of the exceedingly favorable results obtained at the Giessen Clinic with the two stage operation for appendicular abscess he considers the latter the least dangerous procedure and accordingly the operation of choice. The second operation can be combined with the laparoplasty which is so often necessary as a second procedure following the one stage operation.

LOHR (Z)

## LIVER, GALL BLADDER, PANCREAS AND SPLEEN

Crile G. W. A Cytoplasmic Role of the Liver  
*Thrap Ga* 19 6 1 166

Starting with living and 'non living' substances as chemically identical and separating these substances into atoms, Crile describes the development of life and its reproduction in terms of electricity. He traces the source of life to the vibrant energy of light and finally applies his theory to the human anatomy, especially the liver and brain.

He emphasizes the danger of the cooling of the viscera in abdominal operations and to prevent it

recommends diathermy to the upper abdomen and lower chest in all laparotomies. He suggests also the substitution of nitrous oxide anaesthesia for ether anaesthesia. In a case which is a poor risk the patient should not be allowed to pass beyond the stage of analgesia reliance being placed chiefly on regional anaesthesia.

JOHN A. WOLFER, M.D.

Rubenstone A. I. and Tuft L. A Comparative Study of Liver Functional Tests  
*J. Lab. & Clin. Med.* 1926 11 671

The function of the liver is difficult to test as it must be tested indirectly through the blood or bile. The liver has a large margin of safety, only one fourth of the organ being necessary to maintain normal function and the functions of the liver are multiple, being concerned with the metabolism of carbohydrates, protein, fat and iron, the secretion of bile and the filtration from the blood of noxious irritants, particularly foreign proteins.

In an organ with so many functions it is difficult for a single test to serve as an index of total function.

The haemoclastic crisis of Widal is intended to indicate the albumose storing or proteopectic function of the liver. In the authors' experience the findings of this test have been variable and difficult to interpret.

The levulose tolerance test is dependent upon the fact that ingested levulose, in contrast to glucose, produces only a very slight rise in the blood sugar which seldom lasts longer than an hour. This test may serve as an index of the carbohydrate function of the liver but is of clinical assistance only when marked liver changes have occurred. It is of little or no aid in the milder hepatic dysfunction in which a functional test is most desired.

Various diseases of the liver are associated with a marked increase in the bilirubin content of the blood, resulting often in frank icterus. Between the normal and the point at which frank icterus occurs is a period of latent icterus in which the bilirubin concentration, though increased above the normal, is not sufficient to cause definite jaundice.

The quantitative estimation of serum bilirubin is best performed by the method of Van den Bergh or Meulengracht. The test serves to indicate the extent of impairment of biliary function and the response to treatment. In the authors' cases of jaundice with a high index, improvement was shown by a decrease in the index before any change was detectable in the color of the skin. Patients with cholecystitis had indices varying from normal up to 15 or more. The index was increased in hepatic cirrhosis. Malignancy of the liver always produced a high index.

The phenoltetrachlorophthalein test of Rosenthal has given good results. The percentage of dye retention was found to be proportional to the degree of liver dysfunction, reaching 35 per cent in the severe types. The injection of so much dye in cases in which the liver is already damaged is not always safe.



Studies of the blood nitrogen partition are of little value from a practical clinical standpoint. In cases of advanced liver disease the urea value is low and the non protein nitrogen value comparatively high but in cases with less severe hepatic disease the proportion is usually within normal limits. The author combines the tests in the following way:

The patient is prepared as for a levulose tolerance test and the calculated amount of dye contained in a syringe is made ready. Blood is then withdrawn into two tubes, one citrated and one a plain tube. Enough blood is withdrawn for all of the tests. Through the same needle the calculated amount of dye is injected. The patient then immediately drinks the levulose solution and thereafter blood is withdrawn into plain and citrated tubes from a vein of the opposite arm at intervals of thirty minutes, one hour and two hours.

After the blood has clotted it is centrifugalized and the serum is pipetted off. The serum collected before the injection is used for the icterus index determination and as a standard for the dye test. The citrated blood collected before the injection is used for the urea nitrogen, non protein nitrogen and sugar determinations. Blood sugar determinations are then done on all bloods (citrated) taken subsequent to the injection and the sera are used to determine the dye retention.

HOWARD A. MCKINSTRY, M.D.

Berger S S, Cohen M B and Selman J J. Liver Function Tests. A Comparative Study of Five Methods in 100 Clinical Cases. *J Am Med Soc* 1926 LXXXI 1114.

The authors report 100 cases in which five liver function tests, namely the Van den Bergh Widal (haemoclastic crisis), Rosenthal urobilin and urobilinogen tests were made.

Four groups of cases were examined: (1) cases of liver disease with jaundice; (2) cases of liver disease without manifest jaundice; (3) cases in which liver disease was suspected but not demonstrated clinically; and (4) cases in which liver disease was unsuspected.

The authors found that the various tests do not give parallel results and were unable to separate clinical cases into those of liver disease and those without liver disease by means of any one of these tests unsupported by other clinical evidence. When all of the tests were positive they were dealing with liver disease of the most severe type, namely that associated with toxic jaundice. In every case in which all tests were positive except the Widal test there was obstructive jaundice due to tumor. This finding is of great value in the differential diagnosis.

JACOB S GROVE, M.D.

Fernstroem B. A Case of Subphrenic Abscess with Vomited Gall Bladder. *Lecta chirurg Scand* 1926 LX 534.

The author reports a case of gangrenous cholecystitis with abscess formation. When opened the

gall bladder was found to contain gall stones. Operation was preceded by the vomiting of blood during which the gall bladder was ejected into the stomach or intestine. Recovery resulted.

Graham F A. Gall Bladder Diagnosis from the Standpoint of the Surgeon. *Radiology* 1926 VI 273.

Lyons B B V. The Evolution of Early to Late Gall Tract Disease. A Brief Consideration of Its Diagnosis and Treatment. *Radiology* 1926 VI 79.

Zink O C. A Clinical Study of Cholecystitis with the Aid of Cholecystography. *Radiology* 1926 VI 285.

George A W. The Practical Value of the Graham-Cole Method in the Diagnosis of Gall Bladder Disease as Compared with the Older Method. *Radiology* 1926 VI 293.

GRAHAM calls attention to his previous work showing that hepatitis is a constant accompaniment of cholecystitis and that early diagnosis and treatment is essential for the avoidance of late and permanent changes in the liver and possibly also in the pancreas. In the past the recognition of gall bladder disease was based largely upon the late changes. Graham believes that by cholecystography with the aid of tetraiodophenolphthalein valuable information relative to the function of the gall bladder may be obtained and that perturbations of function so recognized may lead to the earlier recognition of pathological conditions.

The criteria upon which a diagnosis of cholecystitis is to be based after the abdomen has been opened are the following: (1) stones; (2) adhesions of the gall bladder to surrounding structures; (3) thickening and change of color; (4) enlargement of the sentinel gland of Lund; (5) evidences of hepatitis involving chiefly the right lobe of the liver. Occasionally gall bladders are opened and removed when the mucosa shows changes such as cholesterol plaques.

The growing confidence in the significance of cholecystographic findings has led on several occasions to the removal of a gall bladder which seemed normal on inspection and palpation, in every instance in which this was done microscopic examination revealed pathological changes in the walls of the organ.

Efforts have been made to use substances for cholecystography which will make it possible to obtain information relative to hepatic function by serum tests. An isomer phenoltetraiodophthalein has been found to answer this purpose but sufficient work has not yet been done with it to determine its practical value.

LYONS confines himself largely to a discussion of non surgical drainage of the gall bladder and the diagnostic information which may be derived from it. He claims that this procedure provides a means of investigating the living histology of the biliary tract in much the same way as surgery permits the study of its living pathology. Microscopic study of material aspirated from the duodenobiliary tract reveals the type, degree and source of epithelial

exfoliation. In the early stages of cholecystitis the changes noted may indicate merely a catarrhal process. If this is allowed to run its course extensive and readily recognizable damage may be done to the hepatic, pancreatic, gall bladder, and bile duct cells.

Acute gall bladder disease is usually an acute exacerbation of a chronic process. If traced back it will often be found to have had its origin in a focal infection with repeated local manifestations followed by successive gastro intestinal disturbances of an indefinite nature culminating finally in frank gall bladder symptoms. Non surgical gall bladder drainage not only gives information regarding the presence of pathological changes, but may serve to check or cure the process and thus obviate the necessity for surgical drainage.

Zink regards cholecystography as of prime importance in the diagnosis of early cholecystitis. He discusses briefly the relative values of the indications for the oral and intravenous methods of giving the dye, and states that questionable findings following its oral administration should always be checked by its intravenous injection.

The diagnosis of gall bladder disease by cholecystography is dependent upon (1) excretion by the liver (2) patency of the cystic duct, and (3) the mucosal concentrating power of the gall bladder.

Failure to obtain a shadow with the use of a standard technique indicates (1) cystic duct occlusion (2) hepatic insufficiency (3) a small sclerotic gall bladder with an obliterated lumen (4) cystic lymphatic damage or (5) failure of the dye to be absorbed (when it is given orally). In the absence of these conditions the time of appearance, density and motility of the gall bladder shadow are indirect indications of the pathological condition of the mucosa.

Cholecystography gives valuable confirmatory evidence in cases with frank clinical evidences of gall bladder disease, but its greatest value lies in its demonstration of such disease in the early stages when there are only vague gastro intestinal disturbances of doubtful origin. The method was used by Zink in 663 cases. Of 131 of these which were operated upon the findings were confirmed at operation in 96 per cent.

George's experience with cholecystography in gall bladder disease has convinced him that the older method of roentgen examination developed largely by himself is equally, if not more reliable in diagnosis except with regard to gall stones. The older method is based primarily upon the fact that the pathological gall bladder may be visualized roentgenographically with a proper technique and that secondary evidences obtained with the aid of the opaque meal such as 'gall bladder seats', adhesions to the second part of the duodenum, filling of the ampulla of Vater and adhesions to the hepatic flexure of the colon are strong indications of cholecystitis. Visualization of the gall bladder after the administration of dye can give information only with regard to the size, shape, and location of that

organ. Non visualization although of some value may lead to error, especially when the dye has been administered orally. Variations of emptying time are of doubtful significance because the normal time has not yet been accurately determined. With regard to stones, George states that those of the cholesterol type can be detected far more readily after the administration of dye than by previous methods.

It is George's conviction that the soundest procedure today for the study of the gall bladder is a thorough examination by the older method with substantiation of the findings so obtained by the use of the Graham Cole procedure.

ADOLPH HARTUNG, M.D.

Babcock, W. W. Cholecystitis and Appendicitis.  
*Surg. Clin. N. Am.* 1926, vi, 20.

Babcock, W. W. Cholelithiasis, Chronic Salpingo-Oophoritis with Adherent Abdominal Scars.  
*Surg. Clin. N. Am.* 1926, vi, 30.

For the usual appendectomy the author advocates a transverse skin incision 4 or 5 cm. in length, beginning 1 cm. median to the anterosuperior spine of the ilium. He believes that the crushing of the appendix with forceps disseminates the infection and that a pursestring suture may contaminate the wound. He therefore ligates the appendix and ties the stump of the meso appendix over the stump of the appendix. Spinal anesthesia is used in cases with purulent peritonitis due to appendicitis. The appendix is removed and drainage used only for the evacuation of solid exudates, foreign bodies, blood or blood clots or old pus. Packing, sponging, wiping and the introduction of the hand into the abdomen are condemned. Salt solution given subcutaneously is preferred to water by rectum. Water and food by mouth are withheld to favor localization of the infection. Localization is indicated by the subsidence of pain and tympany and the expulsion of gas and feces. If the administration of a little liquid by mouth is followed by pain and an increase in the temperature the localization is not sufficient.

With regard to gall stones the author states that in the case of an obese middle aged woman a history of a sudden attack of severe indigestion at night and a sense of epigastric fullness which the patient tried to overcome by belching or vomiting both of which were quite relieved the following day is truer evidence of gall stone obstruction than any known laboratory test or method of physical examination. In certain instances it is well to think of a cardiac attack, coronary obstruction and aortitis in the diagnosis.

In operations for gall bladder disease the condition of the liver should be noted as it is the best indication of the prognosis after cholecystectomy. A liver that has been degenerating for from fifteen to twenty years will not be restored to its primary function by the removal of the gall bladder. When the common duct has been obstructed for some time the author effects gradual decompression of

the liver by anastomosing the gall bladder to the duodenum or stomach with the use of an in and out suture which gradually cuts a new stoma between the two organs. This suture is reinforced by a continuous seroserosus suture.

In cases of biliary fistula in which the gall bladder has been removed Babcock carefully dissects out the fistulous tract and anastomoses it to the duodenum or stomach. JOHN A. WOLFE, M.D.

**Fabritius W. Spontaneous Perforation in Cholecystitis Without Stones (Spontanperforation bei Cholecystitis sine concretis)** *Wien med Wchnschr* 1925 lxxv 2580

The symptoms of cholecystitis without stones frequently simulate those of cholelithiasis and the condition is often not diagnosed until operation is performed. More rare are cases in which a severe chronic inflammation of the gall bladder develops without any symptoms until a life-threatening complication suddenly develops and necessitates immediate operation. The author reports a case of the latter type. The patient, a previously healthy woman, awoke one night with severe pain in the right side of the abdomen. Severe vomiting soon set in and there was a typical McBurney pressure pain. A diagnosis of appendicitis was made.

When the peritoneum was opened dark bile gushed out. The appendix was normal. When the only lightly enlarged gall bladder was freed from the great omentum partly by blunt dissection and partly by means of ligatures a pinpoint perforation from which dark bile was slowly trickling was found on the anterior aspect of the fundus. Stones were not demonstrable in either the gall bladder or the deeper biliary passages. Cholecystectomy was followed by recovery.

The excised gall bladder contained no stones and its mucous membrane showed no ulcerous or destructive processes. At the point of perforation there was a circumscribed necrosis which penetrated the entire thickness of the gall bladder wall. COLLEY (Z)

**Bonnet M. L. and Lapoint M. A. Perforation of a Cancer of the Gall Bladder into the Peritoneal Cavity. Emergency Cholecystostomy and Secondary Cholecystectomy Cure (Perforation en péritoine libre d'un cancer de la vésicule biliaire (cholécystostomie d'urgence et cholecystectomie conduire guérison).** *Full et mem Soc nat d'chir* 1926 lxxx

Bonnet reported the case of a woman 53 years of age who was admitted to the hospital with severe pain in the right hypochondrium associated with muscle spasm and persistent vomiting, a temperature of 38.0 degrees C. and a pulse of 110. She had had a similar attack six months previously.

Laparotomy revealed perforation of the gall bladder and free bile in the peritoneal cavity. The inferior surface of the gall bladder was adherent to the transverse colon. Stones were carefully sought

but were not found. The wound was closed with drainage. Convalescence was uneventful and the patient was discharged after eighteen days with a small biliary fistula. Four months later the fistula was excised and a cholecystectomy was done.

On examination of the gall bladder one stone was found. Histological examination revealed an atypical growth of the gall bladder cells with evidence of malignancy. In the author's opinion this was a case of primary cancer of the gall bladder.

Lapoint calls attention to the rarity of cases of rupture of the gall bladder by cancer so far as he is aware no such case has been reported in the literature. He believes that the diagnosis is possible only at operation as there are no pathognomonic symptoms. PAUL C. C. LOYNA, M.D.

**Sohn A. Fatal Biliary Peritonitis After Puncture of the Common Duct (Tödliche gillige Peritonitis nach Punktion des Choledochus)** *Zentralbl f Chir* 1925 lxxv 2578

In a patient with a penetrating callosus ulcer of the lesser curvature an anterior gastro-enterostomy with a Braun anastomosis was performed and there was a malformation of the intestine. A puncture of the common duct was done to clear the site of operation. The puncture was done with a record syringe and a very small needle. After the aspiration of bile a hot salt compress was applied to close the small opening. No seepage of bile was noted thereafter. Four days later the patient died of peritonitis.

Autopsy revealed a biliary peritonitis caused by the escape of bile from the point of puncture. This case shows that after puncture of the biliary tract without drainage the punctures should always be sutured and that when the common duct is sutured drainage is necessary as a puncture of the wall may reopen. WORTMANN (Z)

**Payr E. Exposure of the Common Duct in Operation for the Recurrence of Stone After Cholecystectomy (Freilegung des Ductus choledochus bei Wiederoperationen nach Cholecystektomie)** *Zentralbl f Chir* 1925 lxxv 1956

It is not always possible even with the best technique to avoid leaving behind small gall stones high up in the branches of the hepatic duct. Stones are less frequently left in the common duct and the papilla of Vater. A method of preventing this error which is described by Payr and Jurasz consists in exploring the biliary passages with the use of rubber catheters and a syringe. The author has frequently observed that secondary operations for the removal of stones from the common duct are attended with difficulties that are little understood. It is therefore necessary to obtain further information with regard to the type of recurrent adhesions and the order in which they should be removed.

Almost always following a cholecystectomy there is found a field of adhesions on the anterior wall of

the abdomen which involves the scar in the abdominal wall, the liver, the transverse colon which is pulled forward, the omentum which is pulled upward and the stomach which is pulled to the right. The separation of these adhesions is easily accomplished by segmental ligation and severance of the omentum. The liver is held up, the stomach held to the left and the colon held down.

The next layers of adhesions to be attacked are those which hold the duodenum high up in the gall bladder bed. The adhesions between the liver and the upper horizontal portion of the duodenum are usually dense and the duodenum like a cap conceals similar structures in the hepatoduodenal ligament. Even when the adhesions are very thick, the duodenum can be easily freed with the knife. The vertical portion can then be mobilized by approaching from the right side according to the method of Kocher. This exposes the hepatoduodenal ligament.

The papilla can be approached only after the separation of the duodenum from the liver and further mobilization of the angle. If the foramen of Winslow is patent, this dissection can be facilitated by the introduction of the forefinger. The common duct which is greatly dilated by gall stones impacted at the papilla often shimmers through with a blue color and is easily recognized. The passage way should be punctured the bile aspirated, two small sutures applied and the duct opened.

Investigations of the retroduodenal portion by means of sounds, calculi spoons and forceps and the little finger often establishes the presence of concretions. These can usually be removed easily through the dilated passage. If the duodenum has been sufficiently mobilized from the right side stones in the papilla can be pushed along. The main stem and the two large branches of the hepatic duct should then be examined and a T shaped drain inserted.

WORMANN (Z)

**Havlicek H** A Case of Rupture of the Pancreas and Spleen Cured by Operation and Some Comments on the Shoulder and Arm Pain (Ein operativ geheilter Fall von Pankreas Milz ruptur und einige Bemerkungen ueber den Schulter Armschmerz) *Zentralbl f Chir* 1925 lii 1967

The author reports the case of a boy 13 years of age who sustained a rupture of the spleen and pancreas and a dislocation of the hip in a fall. The injury was followed by severe shock and on exploratory puncture a bloody exudate was found in the peritoneal cavity.

At first a temporary clamping of the pedicle of the spleen was done and the blood collected in the peritoneal cavity was reinfused. When the general condition had improved splenectomy was performed. A piece of the tail of the pancreas which was torn off was removed and the stump of the pancreas was sutured over and invaginated into the posterior wall of the stomach. The abdominal wall was then completely closed.

Convalescence was smooth except for two attacks of severe pain in the left shoulder and arm. During the first attack the left radial pulse disappeared entirely and the skin of the arm became cool and cyanotic. In both attacks the pain was immediately relieved by a novocain block of the left splanchnic nerve by the method of Kappis. In the second attack the blocking of the left phrenic nerve was attempted as an experiment but without any success. On the basis of this experience the author is inclined to doubt the importance of the phrenic nerve in the conduction of pain and to conclude that in the production of shoulder pain the sympathetic system (splanchnic nerve) is more responsible.

BONN (Z)

**Johnson A A** Pancreatic Disease—With Case Reports *J Iowa State M Soc* 1916 xvi 169

The author calls attention to the frequency of pancreatic lesions. In the Mayo Clinic they were found in 27 per cent of 4,000 cases of biliary tract disease.

Because of the protected location of the pancreas trauma rarely plays an important part in pancreatic lesions. This location however is unfavorable with regard to infections as the latter may reach the organ by direct extension through the blood or the lymphatic system or through the ducts.

The main cause of acute pancreatitis is infection which activates the ferments and causes self digestion of the tissues.

In 70 per cent of the cases the symptoms arise so suddenly and are so severe that a detailed history cannot be obtained from the patient. Pancreatic involvement is suggested by sudden pain in the epigastrium, faintness, and collapse associated with vomiting, retching and frequently jaundice. The diagnosis can be assured however only by seeing and feeling the organ.

While mild pancreatitis often becomes cured the incidence of recovery has been increased by surgical drainage.

WILLIAM F SHACKLETON, M D

**Tower L E** The Pathological Physiology of Experimental Pancreatitis *J Am M Ass* 1926 lxxviii 111

To reproduce in animals the clinical picture of acute pancreatitis it is necessary suddenly to devitalize a sufficient amount of pancreatic tissue to cause extensive necrosis and autodigestion of the gland.

As far as the author knows, no one has considered the possibility that the toxæmia in acute pancreatitis may be due to a severe local injury caused by the action of the protein split products on the musculature of the intestines and probably also on that of the vascular system.

All of the author's attempts to produce a sterile pancreatitis failed. Organisms were always found in one or more of the cultures taken from the peritoneal exudate, the gangrenous gland, localized abscesses etc. However the presence of these

bacteria appeared to be merely incidental and due to the reduction in the vitality of the tissues caused by the violent toxæmia

In the experiments cited the omentum seemed to have a detoxifying power

Tower suggests that the toxæmia of acute pancreatitis acting on the gastro intestinal tract, may produce a toxæmia like that associated with paralytic ileus and that therefore the use of sodium chloride as advocated by Haden and Orr or the duodenal irrigation used in cases of high intestinal obstruction might prove more effective than the introduction of a drain into the pancreas

JACOB S GROVE M D

**Gutiérrez A Implantation into the Stomach of a Pancreatic Fistula Following Cyst (Implantación de fistula pancreática consecutiva a quiste en el estómago)** *Rev de ciruj* Buenos Aires 1925 14 223

The author reports the case of a 28 year old woman who for two years had had attacks of severe pain in the abdomen which at first was diffuse and then localized in the epigastrium and right hypochondrium and was accompanied by vomiting chills and fever She had also copious diarrhea and her urine was scanty and dark There was no icterus but urticaria developed during the first attack Some of the attacks kept the patient in bed for as long as twenty five days About two months before she consulted the author she noticed a rather painful tumor in the right hypochondrium and the adjacent part of the epigastrium Since then the tumor had increased in size In the last two months she had lost 16 kgm in weight

Examination revealed in the right upper quadrant of the abdomen a smooth tumor which was freely movable transversely dull on percussion and surrounded by a tympanic area An area of tympany was found also between its upper margin and the liver The Wassermann test and urine and roentgen examinations were negative Because of the site and free mobility of the tumor a diagnosis of cystic tumor of the transverse mesocolon was made

At operation performed under general chloroform anesthesia an incision through the upper part of the right rectus showed the tumor to be partly above and partly behind the stomach Its upper segment was covered by the lesser omentum It had its origin in the pancreas and was independent of the liver It contained liquid The head and tail of the pancreas particularly the former showed marked induration The tumor was found implanted on the anterior surface of the isthmus of the pancreas

When the cyst was walled off and punctured 300 ccm of a citron yellow liquid was evacuated The gall bladder was displaced to the right by the cyst and was full of stones Poppert's cholecystotomy was performed The wall of the pancreatic

cyst was first sutured to the parietal peritoneum and then to the muscle skin layer The first sutures were of catgut and the second were interrupted sutures of silk The patient was discharged well on the thirty fifth day but had a fistula which discharged freely and was very troublesome

At a second operation the fistulous tract was explored with a sound and found to run backward and toward the midline of the abdomen An injection of lipiodol showed that it ran transversely at the level of the first lumbar vertebra Under chloroform anesthesia a sound was introduced into the fistula a silk suture was passed around it and it was closed A circular incision was then made around it and by vertical incisions it was exposed for its entire length It was followed down to the head of the pancreas The stomach was sufficiently prolapsed to expose the anterior surface of the pancreas

The decision was made to implant the fistulous tract a fibrous cord about the size of a lead pen into the stomach This was very easy on account of the ptosis of the stomach Closed Kocher forceps were introduced into the median part of the anterior surface of the stomach just beneath the fistula passed upward and outward and brought out just beneath the end of the fistula A part of the fistula was cut off enough being left to introduce into the stomach The forceps were then opened and an incision was made in the stomach wall between its blades The end of the fistula was pulled into the stomach with the forceps and fixed by means of a catgut suture passed through its wall and the stomach wall Its external surface was fixed to the upper opening in the stomach with four sutures of fine silk The lower opening was then closed with seroserosus sutures A pad of omentum was placed beneath the free surface of the fistula where it came in contact with the stomach wall

The steps in the operation are shown in illustrations Healing occurred by first intention For several days the patient complained of nausea Within two months after the operation she had gained 5 kgm in weight

ALDREY G MORGAN M D

**Harris R I Splenectomy for Purpura Hæmorrhagica** *Canadian M Ass* 1926 141 384

Essential thrombocytopenic purpura is differentiated from the other types of purpura by (1) a low platelet count (2) a prolonged bleeding time with a normal coagulation time (3) a positive capillary resistance test (4) failure of the clot to retract and (5) enlargement of the spleen

Infection plays a prominent part in the production of the obscure pathological changes which give rise to the disease

The most important though not the only factor causing the hæmorrhagic condition is the thrombocytopenia

Splenectomy produces a symptomatic cure

HOWARD A McKNIGHT M D

## MISCELLANEOUS

Troell A. Comments on the Fahræus Reaction—the Stability of the Blood Suspension—in Acute Surgical Affections of the Abdomen. *Acla chirurg Scand* 1926 lvi 523

On the basis of his experience in recent years and especially in eight cases which he reviews, the author maintains that in acute abdominal conditions of a doubtful and apparently mild type the surgeon can profit greatly by investigating the suspension stability of the blood by the Fahræus test, and in cases given expectant treatment he can profit by making this test repeatedly to determine whether the values are rising or falling.

While the Fahræus test is sometimes a better indication of the intensity of an infection than the leucocytosis, it cannot be regarded as an absolutely reliable indicator of the gravity of an inflammatory process in the abdomen particularly if the peritoneal irritation is of very recent development. In all of the author's cases of appendicitis and cholecystitis with a pathological increase in the Fahræus value—usually higher in the latter than the former because of the resorption of toxic products from a fairly large serous surface—the patient had been ill for at least forty eight hours.

Neuhof, H., and Cohen I. Abdominal Puncture in the Diagnosis of Acute Intraperitoneal Disease. *Ann Surg*, 1926 lxxxiii 454

Abdominal puncture for the diagnosis of acute intraperitoneal disease is done with the use of a spinal puncture needle and a 20 c m syringe. Ethyl chloride locally or novocain is employed for anesthesia. The skin is opened with a scalpel at a point on a level with or below the umbilicus and at either side of the midline. The needle is introduced perpendicularly and aspiration is attempted in several different directions. Only a few drops of

fluid may be obtained, but this is often sufficient for a diagnosis. The theoretical danger of penetrating a loop should not deter the surgeon from taking advantage of this procedure, but it is not safe in the subacute or chronic case in which a loop of bowel might be adherent. A negative puncture has not been considered conclusive and if the symptoms justify surgical intervention such a finding has been disregarded. A positive puncture has prevented operation in a number of cases in which it would otherwise have been employed. A careful bacterial and cytological examination of the fluid obtained is as important as the finding of the fluid.

In a group of traumatic cases the presence of blood or fluid as indicated by puncture was proved by subsequent laparotomy. In a group of cases of pneumococcus and streptococcus peritonitis the discovery of the organism on abdominal puncture prevented an unnecessary laparotomy. The finding of fluid the color of beef juice and containing polymorphous leucocytes but no bacteria has decided the diagnosis of acute pancreatitis and the withholding of operation.

WILLIAM J. PICKETT M.D.

Ghose D. M. A Case of Persistent Hiccough Treated Successfully by Injections of Novocain into the Phrenic Nerve. *Indian M Gaz* 196 lvi 124

In the case of a patient who was in a state of extreme prostration from hiccoughing for almost four months the author infiltrated the phrenic nerve with from 2 to 4 c m of a 1/2 per cent novocain solution. The first injection made on only one side, caused transient pain in the shoulder and chest on that side. On the following day, 3 c m of the novocain solution was injected on the opposite side. After three injections there was some improvement and after six injections the hiccough ceased completely. The technique of Kroh was used.

JOHN A. WOLFER M.D.

# GYNECOLOGY

## UTERUS

**Ulesco Stroganowa K.** Endotheliomata of the Uterus (Die Endotheliome des Uterus) *Arch f Gynaek* 1925 cxiv 802

The morphological and histogenetic characteristics of endotheliomata of the uterus are due to the origin of these tumors from the endothelial and adventitial elements of the blood vessels. On the basis of studies of nine such tumors—three of the corpus and six of the cervix—the author distinguishes endothelioma carcinomatodes sarcomatodes and sarcomatodes in addition to cases of excessive blood vessel development resulting in lympho- or hamangio endotheliomata according to the vessel of origin.

As the literature does not report all epitheliomatous tumors they are perhaps more common than is generally supposed. To this group belong the tumors described by Fellaender as 'elefantiasis endometrii fibrosarcomatosi gigantomatosa' and also others described as giant cell polymorpho cellular and botryoid sarcomata.

In all of the cases studied by the author an undoubted relationship was apparent between the tumor elements and the vessels from whose endothelium or adventitia the tumor developed. In some of the cases the endothelioid character of the cells predominated so that the tumor had an epithelial or carcinoma like character while in other the admixture of other forms which were more characteristic of connective tissue suggested a sarcoma.

The power of the endothelial and adventitial cells to react to inflammatory stimulation in various forms was shown by an astonishing polymorphism of the tumor cells. Epitheliomata of the cervix are characterized by the predominance of large epithelioid cell forms which in addition to polymorphism are distinguished by very numerous mitotic figures. In these tumors there may be also small elements no larger than leucocytes or large elongated multinuclear cells. The tumor tissue formed from the e elements and their transitional forms is arranged in centers and columns sometimes in reticular foci and sometimes in larger masses penetrated by a network of thin walled blood vessels and capillaries.

In tumors of the corpus there are found besides cords of epithelioid and often multinuclear cells similar to those of tumors of the cervix cords of spindle and oval cells. These give the neoplasm more of a sarcomatous character but because of their undoubted origin from endothelial and adventitial elements the tumors must be classed with the endotheliomata.

The frequently multinucleated and often very large cells found in endotheliomata also have their origin in endothelial and adventitial cells. Within the vessels they are formed either by mitotic or amitotic nuclear multiplication or by the syncytial confluence of endothelial cells a process in which leucocytes and the remains of cell nuclei and red blood cells are not infrequently surrounded. This content of blood corpuscle material explains the pink color of the giant cell like structures so formed a finding frequently mentioned by the author in his description of the different tumors. Sometimes the syncytial masses so formed show branches which retain the shape of the vessels.

The details of the descriptions cannot be given in an abstract without the illustrations.

In conclusion the author cites a case in which death occurred from peritonitis immediately after radium treatment. **FIESCHI (C)**

**Lynch F W** The Treatment of Squamous Cell Epithelioma of the Cervix *Surg Clin A 1m* 1926 vi 333

In the author's opinion the ordinary panhysterectomy in the treatment of squamous cell carcinoma of the cervix is to be condemned. The radical dissection of Wertheim is better but because of its technical difficulty and high primary mortality is not generally employed. Radium offers a much better chance of a five year cure than surgery or the cautery.

In cases in which the carcinoma is limited to the cervix and the operative risk seems good a preliminary irradiation of about 3000 mc hrs should be given and followed from two to four weeks later by a radical excision. All other cases should be treated with radium alone. Some surgeons use radium alone in all cases but reports collected by the author indicate that when the condition is operable the incidence of five year cure was about 50 per cent in cases treated surgically as compared with 36 per cent in those treated with radium alone.

**I EDWARD BISHKOW M D**

**Rud H** A Histological Investigation of a Case of Cancer of the Cervix of the Uterus Cured Locally by Radium and X Ray Treatment *Acta obst y gynec Scand* 1925 iv 66

The author reports the clinical course and autopsy findings in the case of a patient who was clinically cured of cancer of the cervix by radium and X ray treatment and died of an intercurrent disease.

Autopsy showed macroscopic healing of the process in the uterus, vagina and left parametrium but remains of the tumor were found in the right parametrium.

On microscopic examination of the organs, cancer cells could not be demonstrated in the uterus, vagina, rectum, bladder left parametrium or left ovary.

Remains of cancer tissue showing degenerative changes were still present in the right parametrium and right ovary.

The tissue treated by irradiation showed also an increase in the connective tissue the occurrence of hyaline areas and fibrinoid necrosis in the muscles and thickening and obliteration of vessels the walls of which showed hyaline and fibrin like tissue. The mucous membrane of the uterus and vagina in the neighborhood of the cancer site was atrophied.

Ward, G. G. and Farrar, L. K. P. The Radium Treatment of Carcinoma Uteri. *Am J Obst & Gynec* 19 6 xi 430

The authors state that for the purposes of comparative study, a standardized simple classification of carcinoma of the uterus according to the extent of the disease and the same rules in estimating end results and percentages should be adopted by all clinics.

A monthly follow up conducted by the surgeon in charge of the patient is of inestimable value for successful radium treatment. The details of technique are of importance. Over radiation is especially to be avoided and subsequent treatment should be based upon the reaction to the test dose of radium. In the authors' experience, repeated irradiations (three or more) have been of distinct value in certain advanced cases.

In all classes of carcinoma of the cervix radium is preferable to surgery. As life can be saved by radium in at least 50 per cent of the early cases of carcinoma of the cervix the education of the laity and general practitioners to seek an early diagnosis is imperative. Carcinoma of the fundus is best treated by surgery but in many cases resort must be had to radium and roentgen ray therapy because the operative risk is high.

For satisfactory results it is unnecessary to use large amounts of radium. The value of roentgen ray therapy in carcinoma of the uterus is still undetermined. Every case should be treated according to its particular requirements.

E. L. CORNELL M.D.

Voltz, F. Carcinoma of the Cervix Treated Exclusively by Irradiation (Die ausschliessliche Strahlenbehandlung des Collum Carcinoms). *Klin Wchnschr* 19 5 iv 1396

On the basis of material from the Munich Gynecological Clinic during the years 1912 to 1919 it is shown that irradiation of carcinoma of the uterus is as effective as operative treatment and sometimes even more effective. To the cases in which a five year cure had been obtained up to the year 1918 which have been reported previously are added the cases with a five year cure which were treated during the years 1918 and 1919.

There were 313 cases of carcinoma of the cervix. Of these 271 were treated and forty two were unsuitable for treatment. Since 1918, radium treatment has been combined with roentgen treatment. In the total number of cases the incidence of cure was 12.4 per cent, while in those remaining after the subtraction of the untreated cases it was 14.3 per cent. The results in the four groups were the following:

Group 1, thirty seven operable cases, a cure in sixteen (43.2 per cent). Group 2, seventy four borderline cases, a cure in fifteen (20.3 per cent). Group 3, 100 inoperable cases, a cure in eight (7.5 per cent) and Group 4, ninety six unsuitable cases, no cures in the fifty four which were treated.

In 755 cases of carcinoma of the cervix treated in previous years an absolute cure was obtained in 13.2 per cent and a five year cure in 43.6 per cent of those which were operable. In the total number of cases of carcinoma of the cervix treated by irradiation which have been reported in the literature—1825—Voltz estimates that an absolute cure was obtained in 16.9 per cent and a relative cure in 41.6 per cent of those which were operable. In contrast to this he estimates for 2,185 cases of carcinoma of the cervix an absolute operative cure of 26 per cent and a cure in a total of 39 per cent of the cases operated upon.

Accordingly the figure for absolute cure by irradiation is lower but this is explained by the fact that the total material was poorer since in the older operative cases the average operability was 64 per cent whereas in the irradiated cases it was only 19.3 per cent. The poorer quality of the material is explained by the fact that many cases which previously were regarded as beyond treatment were sent to the Clinic for irradiation.

Worthy of note is the five year cure obtained in 10.1 per cent of 1778 cases of inoperable carcinoma of the cervix collected by Voltz from the literature which were treated by irradiation. Attention is called also to the so called optimal cure figure that is the result obtained when the patient submitted to a complete course of treatment. In Group 1 this was 74.8 per cent in Group 2 41.2 per cent, and in Group 3 13.1 per cent.

The author believes that by further development in the technique and methods of irradiation the results may be further improved particularly by irradiation of the hypophysis, exact dosage, and the reduction of irradiation sickness by the use of irradiation cabinets. MARTIUS (C)

## ADNEXAL AND PERIUTERINE CONDITIONS

Pettinari, V. The Ovarian Graft and Its Application to Treatment in Clinical Cases (La greffe ovarienne et ses applications à la thérapeutique humaine). *Gynec et obst* 1926 viii 19

Experiments performed by the author on 33 animals of various species showed that ovarian tissue transplanted in animals of the same species can



be made to live elaborate the normal internal secretion and assume the germinal function. The likelihood of a successful take increases with descent in the biological scale.

The normal histological condition of some of the authors' grafts is shown in illustrations. Follicle formation and the presence of corpora lutea were noted. The formation of corpora lutea was seen chiefly in the autoplasmic grafts whereas in heteroplasmic grafts follicle atresia was the rule. In the homoplasmic type the tendency was in the balance.

The ovarian secretion which exerts the chief influence on female morphology and physiology cannot be replaced by other internal secretions but can be resupplied by grafted tissue.

The relation of the ovarian secretion to the various mammary, uterine and other cycles has not yet been established but it is known that ovarian secretion is necessary for the maintenance of these cycles. Nervous disorders influence sexual function by modifying the endocrine action of the ovaries.

A successful graft will prevent the appearance of the usual effects of castration and will carry the organism to its complete sexual development. In old animals it causes a profound psychic and somatic change.

In the transplantation of ovarian tissue in clinical cases the receptor is too often in poor general condition, the area in which the graft is placed is diseased or unsuitable or the grafted tissue is unsatisfactory.

The following conditions may be favorably affected by an ovarian graft: (1) infantilism of the genital organs; (2) the pathological menopause due to castration; (3) dysovism and ovarian insufficiency; (4) ovarian sterility; (5) pluri-glandular endocrine syndromes; and (6) certain mental affections.

In the human female autoplasmic transplants give the best results but homoplasmic grafts have occasionally proved satisfactory. Grafts are used to stimulate impotent ovarian tissue as well as to replace removed or destroyed tissue.

Ovarian grafts have great therapeutic possibilities and with increased knowledge and improvement in technique their use will become more general in the treatment of conditions not amenable to other ovarian therapy. At present they should be used with discretion.

GOODRICH C. SCHAUFLER M.D.

**Bolling, R. W.** An Ovarian Cyst Free in the Peritoneal Cavity of Three Months Old Infant  
*Ann. Surg.* 1926 LVIII 546

The author reports the case of an infant 3 months old who had vomited and lost weight since birth. In the right lower quadrant of the abdomen there was an elastic mass about the size of a golf ball. At operation the mass was easily delivered and rolled out of the wound as it had no attachment. Examination revealed a normal uterus with a normal ovary and tube in the left side but no ovary or tube on the right side. The mass was a multilocular ovarian cyst

which had become separated from its attachment as the result of torsion. The patient recovered.

I. EDWARD BISHKOW M.D.

**Shaw, W.** Krukenberg Tumors of the Ovaries  
*Proc. Roy. Soc. Med. Lond.* 1926 LX Sect. Obst. & Gynec. 49

Krukenberg tumors of the ovary were first described by Krukenberg in 1896. They are bilateral tumors which may occur at any age. Their growth is slow and accompanied by ascites. They retain the normal shape of the ovaries and have a smooth surface.

Histologically the stroma consists of fibrillae in the form of spindles with oval nuclei densely packed together. Also predominating are round or oval cells with bright translucent homogeneous protoplasm and nuclei pushed to one pole and flattened out against the cell membrane giving a signet ring appearance. Krukenberg believed the tumors to be fibrosarcomatous in type. Later other investigators found them associated with carcinoma of the stomach. The author reports five cases.

In view of the fact that in the vast majority of the reported cases carcinoma was discovered in the stomach it is probable that the ovarian tumors are secondary carcinomata rather than primary fibrosarcomata.

I. EDWARD BISHKOW M.D.

**Princeteau and Magnan.** Simultaneous Rupture of Both Fallopian Tubes (Rupture bilatérale simultanée des deux trompes utérines). *Bull. Soc. d'obst. et de gynéc. de Par.* 1926 XV 55

The patient whose case is reported was a woman 22 years of age who was admitted to the hospital on November 7, 1925 complaining of pain in the lower part of the abdomen and a bloody vaginal discharge. She had had one pregnancy sixteen months previously. Her last regular menstrual period began July 30, 1925. In the evening of that day she had an attack of sharp pain in the lower part of the abdomen, vomiting and syncope which persisted until the following day. Her condition then improved and she was able to get out of bed but on the third day the attack recurred. A physician called two weeks after the onset advised immediate operation.

On the patient's admission to the hospital her temperature was 37.9 degrees C. and her pulse 100. Examination revealed a chocolate colored vaginal discharge, tenderness in the lower abdomen and a mass in each iliac fossa. The cervix was soft and patulous. A diagnosis of ectopic pregnancy on the left side with dextroflexion of the uterus was made.

Operation revealed on the right side of the pelvis a bluish mass the size of two fists and on the left side a swollen fallopian tube with a perforation about 2 cm. in diameter from which blood was escaping. The mass on the right side was apparently a hemothecoele. It could not be removed completely as it seemed to be attached to the rectum. A left salpingectomy and a subtotal hysterectomy were performed.

SALVATORE DI PALMA M.D.

## EXTERNAL GENITALIA

Watson, B P A Technique for the Operative  
Treatment of Rectocele *Edinburgh M J* 1926  
n 5 44111 Edinburgh Obst Soc 61

The essential feature of Watson's operation for rectocele is the isolation and repair of the special fasciomuscular sheet which supports the rectum and in all cases of rectocele is deficient. This rectal fascia is a broad strong sheet of musculo-fascial tissue in close relation to and supporting the anterior rectal wall and lying deep to the levator ani muscle. It is in intimate relation to the posterior vaginal wall in its middle third and becomes continuous at the sides of the cervix with the fascial layer which is the main support of the bladder. Rectocele is the result of injury to this fascia.

In the operation described an incision is made through the mucocutaneous juncture round the poste-

rior part of the vulvar orifice. In the elevation of the flap from the posterior vaginal wall blunt scissors are used. Each side is opened and held up by forceps so that the median scar can be seen and can be dissected away without injury to the rectum. Two bands are found attached to the flap which do not wipe away easily and represent the torn rectal fascia. Below this and on each side is the mass of levator muscles and fascia which, in the usual operation, are joined together by interrupted sutures as a rule under considerable tension. In the author's operation a deep bite is taken into the fascial sheath above the upper margin of the rectocele on each side and when this suture is tied the fascia is overlapped above the rectum. A continuous suture is usually employed.

In addition to curing the rectocele, the fascial union restores the support of the pelvic floor.

HARRY W. LINK, M.D.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

**Kupfer M** Ovarian Pregnancy Following Operation for a Tubal Pregnancy on the Same Side (Ovarialgravidaet nach gleichseitiger operierter Eileiterschwangerschaft) *Zentralbl f Gynaek* 1925 xix 2241

Kupfer reports the case of a 26 year old woman who had been operated upon for tubal pregnancy on the left side and upon whom he operated for a suspected extra uterine pregnancy. At the second operation a large quantity of dark blood was found in the abdominal cavity. The left ovary had been transformed into a tumor the size of an egg. The stump of the left tube which was 1 cm long was not connected with the ovary. The right adnexa were normal. Extirpation of the left ovary was followed by uneventful recovery.

The specimen showed evidence of a fetal sac. No histological examination was made. The author assumes that there was an external migration of the spermatozoa but admits that patency of the stump of the left tube could not be ruled out definitely.

VON WEINZIERL (G)

**Von Bodé R and Liebmann S** Investigations Regarding the Calcium Ion Concentration of the Blood in Puerperal Eclampsia (Untersuchungen ueber die Calciumionkonzentration des Blutes bei puerperaler Eklampsie) *Arch f exper Path u Pharmacol* 1925 cix 178

The authors examined the blood serum of women with eclampsia for ionized calcium according to Trendelenburg's method of perfusing the frog's heart. These studies followed those of Lamers, Rissmann and Kehrner who found the calcium content of the blood lowered in eclampsia and attributed the convulsions to a calcium hypotonia.

In the authors' investigations sera which had been kept on ice for twenty four hours were tested on the isolated frog's heart. If a reduction of the contractions occurred further tests were made to determine whether the addition of calcium ions would prevent such a reduction. The serum first tested was obtained from thyroidectomized dogs in which tetany had been produced by the removal of the parathyroids.

It was found that the normal contractions of the frog's heart perfused first with Ringer's solution were decreased when the serum of the parathyroidectomized dogs was added whereas when calcium ions were added to the serum (0.1 calcium chloride solution with 0.16 mgm calcium chloride to 1 c cm of the tetany serum) the contractions returned to normal.

In experiments with the serum of normal pregnant women and women who had been recently

delivered the contractions of the heart muscle remained normal and no decrease in the calcium content could be demonstrated. Neither was a calcium hypotonia found in the serum of nine eclamptic women whose serum had as little effect on the frog heart as that of normal pregnant and puerperal women. Therefore a decrease in the free calcium ions in the blood which might be responsible for the convulsions could not be demonstrated in puerperal eclampsia. SCHMIDT (G)

**Lindquist S** Retention for Nearly Twelve Months of a Mature Fetus in a Uterus Which Is the Seat of a New Pregnancy (Third Month) *Acta obst et gynec Scand* 1925 iv 187

The patient whose case is reported was a para iv with a normal history who during her fifth pregnancy felt fetal movements after the fifth month but ceased to feel them during the ninth month. When she was first seen by the author she had not felt fetal movements for eight days. She refused intervention.

When she returned two months later the fundus seemed smaller and the upper right portion of the uterus seemed to be divided from the lower portion by a sulcus. She again left the service against advice and was not seen again until twenty months from the onset of the pregnancy. On her return she stated that she had had one normal menstrual period six months previously and another four months previously.

Laparotomy revealed a uterus with two parts having no demonstrable connection. The upper and larger part contained a macerated and apparently full term fetus and the lower and smaller portion a fetus about 14 cm long.

GOODRICH C SCHAUFFLER M D

**Commandeur Eparvier and Michon** Cancer of the Cervix and Pregnancy Caesarean Section Porro's Amputation Radium Therapy (Cancer du col utérin et grossesse césarienne amputation de Porro curiethérapie) *Bull Soc d obst et de gynec de Par* 1926 xv 59

The patient whose case is reported was a 40-year old woman who entered the obstetrical clinic at Lyons in the seventh month of pregnancy with a cancer of the cervix. Examination revealed considerable hypertrophy of the cervix and the exploring fingers became blood tinged. There was a slight induration in the right vaginal cul de sac.

Three weeks after the patient's admission to the hospital she began to lose blood. During the night of August 21 she had a vaginal hemorrhage. Following a classical caesarean section in which a living female infant was delivered Porro's amputation

was done immediately and the abdominal wall closed. The postoperative course was without incident.

Fifteen days after the operation the cervix was dilated and two tubes of bromide of radium of 50 mgm each were inserted from the abdominal opening. In the pericervical vaginal site, three tubes of 25 mgm were placed in a circular drain around the cervix.

Three weeks after the application of the radium, examination showed complete disappearance of the cervical tumor and only slight induration in the anterior cul de sac.

No mention is made of a microscopic examination of the tumor. SALVATORE DI PALMA, M.D.

Michel Fruhinsholz and Mathieu. Cancer of the Cervix and Pregnancy. Hysterectomy in the Fourth Month. End Result. (Cancer du col et grossesse hystérectomie au 4<sup>e</sup> mois résultat éloigné). *Bull Soc d'obst et de gynec de Par* 1926, xv 106.

The case reported by the authors was that of a woman 40 years old who had had four children, all of whom died shortly after birth. On July 25, 1921 when the patient was in the fourth month of pregnancy she entered the hospital on account of marked leucorrhœa. A diagnosis of malignant new growth of the cervix was made and a Wertheim hysterectomy performed. The parametrium was not invaded.

Convalescence from this operation was normal, and the patient left the hospital a month later in excellent condition. On December 28, 1921 she returned on account of a bloody vaginal discharge. Examination then revealed an indurated mass at the end of the vagina. Curettage of this mass was followed by the application of radium.

On April 10, 1925 the patient again returned to the hospital with a bloody vaginal discharge. Examination revealed a small crater like induration at the end of the vaginal stump. A second application of radium was given.

In December, 1925, four years and four months after the hysterectomy, the patient is in excellent condition. The vagina is smooth and shows no ulcerations. A small nodule the size of a pea in the posterior part of the vagina the authors believe is a scar.

No mention is made of a microscopic examination of the neoplasm. SALVATORE DI PALMA, M.D.

## LABOR AND ITS COMPLICATIONS

Esch, P. The Occurrence of Brain Pressure and Its Effect upon the Fetal Heart Sounds During Labor. (Ueber das Zustandekommen und den Einfluss des Hirndrucks auf das Verhalten der kindlichen Herztoene während der Geburt). *Monatsschr f Geburtsh u Gynaek* 1925 lxx 308.

There are two types of brain pressure. One is the acute type which is due mainly to mechanical factors such as pressure or a blow upon the brain

and may occur during operative delivery or the sudden descent of the infant through a narrow pelvis. The other is a gradually developing type which is due to a disturbance in the circulation of the blood such as venous stasis or obstruction of the arterial supply which causes cellular injury.

The acceleration of the heart sounds resulting from cerebral pressure the author attributes chiefly to vagus irritation rather than to a carbon dioxide overload such as occurs in general asphyxia. Where as in acute cerebral pressure a rapid recovery of the heart sounds is to be expected the author believes that when cerebral pressure is manifest an attempt should be made to terminate the labor just as in cases of slowing of the heart due to an overload of carbon dioxide.

However if the prerequisites for a forceps delivery have not been met, there is danger that a forced delivery may cause an increase in the cerebral pressure which will prove serious for the child. Consequently the danger of waiting until the indications for a forceps operation become apparent seems to be less than that of forcibly ending the labor at once. HENNICKE (G).

Polak, J. O. The Technique of Transperitoneal Cæsarean Section. *Surg, Gynec & Obst*, 1916, xlii 551.

To decrease the danger of cæsarean section, pelvic disproportion or fetal malposition must be recognized either before or immediately at the beginning of labor. In the borderline case with but slight disproportion and only slight deflexion of the vertex, good obstetrical judgment is particularly necessary.

Since over 80 per cent of labors in cases of borderline contraction terminate spontaneously or can be terminated with the aid of low forceps, it is well in these cases to allow the woman to have a moderate test of labor. This is best given in bed, the patient's strength being conserved by rest, the free use of morphine and scopolamine, forced feeding, and the forced ingestion of fluids. During this preliminary test the character of the contractions, the contour of the uterus, the pulse, the temperature, the progress of descent, and the amount of dilatation should be carefully checked.

If there is no evidence of advance or no apparent increase in the dilatation of the cervix, a careful vaginal examination with the bladder empty should be done and an attempt made to crowd the perfectly flexed head into the brim. If there is much over riding or if the consistency of the head and sutures show that the head cannot be crowded in, cæsarean section is indicated.

Prior to the induction of anaesthesia in such a case the patient should be given an intravenous injection of 250 cc. of a 10 per cent glucose solution. In the pre operative preparation of the genital organs, 1 oz. of a 4 per cent solution of mercuriochrome should be slowly injected into the vagina while the hips are elevated on a sterile douche pan. This should be done at least thirty minutes before

the operation and is necessary particularly when the membranes are ruptured

The operation is described in detail and the essentials in the after treatment are discussed

Of chief importance in the technique are (1) the low abdominal incision (2) the placing of the traction suture in the uterus at the upper limit of the abdominal incision so that when held taut it will completely close the wound (3) the separation of the peritoneal flap including the bladder (4) the delivery of the fetus by the head (5) spontaneous separation of the placenta (6) the packing of the uterus with washed iodoform gauze to stimulate its contraction and retraction (this gauze is usually found in the vagina at the end of twenty-four hours) and (7) complete occlusion of the uterine wound by suturing the bladder reflexion over it to prevent peritoneal leakage and intestinal adhesions

ROLAND S. CROX, M.D.

### PUERPERIUM AND ITS COMPLICATIONS

**Kirstein** A New Procedure for the Treatment of Severe Puerperal Infection (Ein neues Verfahren zur Behandlung schwerer puerperaler Infektion) *Arch f Gynaek* 1925 cxxx 399

The author's method of treating severe puerperal infection is based upon the continuous intravenous infusion of physiological sodium chloride solution used by Laewen with good results in peritonitis. In order to strengthen the heart muscle at the same time glucose solution is injected intravenously according to the recommendation of Buedingen.

Kirstein uses only a 10 per cent glucose solution. He injects 2 or 3 liters intravenously every day. According to the requirements of the case strophanthin or adrenalin is added to the solution.

The result of this continuous intravenous infusion may be shown graphically by curves. It consists in a fullness of the circulation which accelerates metabolism. The acceleration may be further increased by the induction of sweating. There is also an increased diuresis which increases the bactericidal power of the blood. Three liters of a 10 per cent glucose solution represent 1,500 calories. Therefore like protein bodies glucose acts as a stimulant.

HERSCHAN (G)

**Fuerst W.** Rectal and Vaginal Examinations and the Prophylaxis of Puerperal Infections (Die Bedeutung der rectalen und vaginalen Untersuchungensmethoden fuer die Prophylaxe puerperaler Wundinfektionen) *Arch f Gynaek* 1925 cxxx 395

In order to determine whether rectal examination is to be preferred to vaginal examination in the clinical conduct of labor the author reviewed 4,017 cases. Up to one hour of labor and from one to three hours after the rupture of the bag of waters the temperature rose above 38 degrees C less frequently after rectal examinations than after vaginal examinations (an incidence of 7.8 to 8.7 per cent as compared with an incidence of 10.2 to 13.5 per cent). Moreover the incidence of puerperal infection was six times as high in the cases examined vaginally as in those examined rectally.

Fuerst concludes from this study that the vaginal examination should be used only when it is most definitely indicated and that for the instruction of students and midwives the rectal examination is the method of choice.

HERSCHAN (G)

**Bovin E.** A Case of Puerperal Streptococcal Septicemia with Sequestering Osteitis of the Right Pubic Bone (*Acta obst et gynec Scand* 1925 iv 183)

A woman 42 years of age had a difficult forceps delivery resulting in the death of the child, tears in the vagina and cervix and streptococcal septicemia. When she was discharged from the hospital at the end of about six months she complained of pain in the right leg. A year later this pain was still very severe and caused disability. An orthopedist treated the patient for hip disease but the disability continued. Two years after the patient's delivery a sinus was discovered which opened into the vagina opposite the right pubis and drained foul pus. X-ray examination disclosed a sequestering osteitis of the right pubic bone and a wide diastasis of the pubic rami.

The author states that the lesion in the pubic bone might have been secondary to an injury of the symphysis caused by the forceps delivery but he believes it more probable that it was due to direct extension to the bone of infection from a vaginal tear.

GOODRICH C. SCHAUFFLER, M.D.

# GENITO-URINARY SURGERY

## ADRENAL, KIDNEY, AND URETER

Fuchs F. Studies of the Inner Topography of the Kidney (Untersuchungen ueber die innere Topographie der Niere) *Ztschr f urol Chir* 19 5 xviii 164

This is a study of importance to every surgeon operating on the kidney. The possibility today not only of diagnosing the presence of a stone in the kidney but also of locating it exactly becomes of practical value only when the stone can be removed by the best route as determined anatomically. To determine which route is best the author studied numerous corrosion preparations of the arteries, veins and pelves of injected kidneys and the roentgenograms of kidneys filled with contrast material. The most important findings were the following:

The interlobar arteries branching off from the main artery course along in the renal sinus nearly parallel with the calyces. On entering the sinus these vessels sometimes cross it at an acute angle corresponding to the spaces between the calyces, one plane lying immediately ventral and the other dorsal to the pelvis. At a point about  $\frac{1}{2}$  cm before their entrance into the renal parenchyma vessels from the ventral group of branches pass dorsally through the calyx interstices and then course along with the dorsal group. Except in the parenchyma it is rare that the interlobar arteries of the dorsal group join the ventral group.

Therefore if trusting to the independence of the anterior vascular region from the posterior vascular region the surgeon uses the autopsy or the Zondek incision cutting through into the calyces he will invariably enter a zone about 1 cm thick in which there is an overlapping of both vascular regions and vessels of the caliber of the interlobar arteries will be opened. The dividing line between the terminal branches of the anterior and posterior interlobar arteries lies as Zondek has stated, nearly always from  $\frac{1}{2}$  to  $\frac{3}{4}$  cm behind the line of convexity of the kidney. However in the author's opinion this line is of secondary importance because the terminal branches are of small caliber. Arteries of this caliber are cut in every incision into the parenchyma and their injury is of much less importance than the injury of an interlobar artery.

There is no constant relationship between the form or type of the renal pelvis and the manner in which the blood vessels branch. The bipartite renal pelvis demonstrated pyelographically does not have as might be assumed a separate cranial and caudal vascular region. The space between the two main pelvis harbors like a small calyx interspace interlobar vessels which pass from the ventral to the dorsal group frequently in fact it is the chief

ventral branch which passes dorsally in the large calyx interspace. Therefore when the bipartite pelvis is approached from the convexity of the kidney this main branch may be injured.

From these anatomical findings it appears that a stone revealed by pyelogram or by fluoroscopic examination of the luxated kidney is approached best not by an incision on the convexity of the kidney but by a radial incision made on the dorsal or ventral surface.

The main facts stated concerning the interlobar arteries apply also to the veins. A finding of importance with regard to hemorrhage due to a tumor and the location of the source of the bleeding in so called essential hemorrhage is the fact that the fornix calicis is surrounded for three fourths of its circumference by a network of veins of the caliber of the interlobar veins. This network lies directly on the wall of the calyx without any interposed sinus fat. Therefore hemorrhages from these veins enter not the fatty tissue of the sinus but the calyx. This fact explains also why fluids injected into the renal pelvis not infrequently enter the venous system. The fornix calicis must be regarded as an area which is predisposed to venous hemorrhages into the renal pelvis. PFLAUMER (Z)

Pflaumer E. The Physiology of the Renal Calyces and the Renal Pelvis (Beobachtungen zur Physiologie der Nierenkelche und des Nierenbeckens) *Verhandl d Deutsch Gesellsch f Urol* 19 5 p 62

The excretion of urine from the renal pelvis is not continuous but intermittent. Continuous dropping of urine indicates dilatation and stasis of the ureter or renal pelvis. Immediately after a series of drops the renal pelvis is not empty and if the end of the catheter lies in a calyx instead of the renal pelvis not a single drop of urine can be expressed or aspirated. Urine can be obtained by retrograde catheterization only after from twenty to sixty seconds. The urine is therefore poured intermittently from the papillae into the renal calyx and in the intervals the calyx is closed against the pelvis.

From these facts the author assumes that certain anuric conditions are caused by spasm of the papillary sphincters. The failure of the periodic closure of the papillae due to stasis in the renal pelvis is increased (increased infiltration) and the pressure exerted upon the urine in the medullary substance is diminished (diminution of resorption). This explains the polyuria occurring in prostatic conditions and may possibly explain also certain deviations in the urinary secretion which are found to occur in tuberculosis of the tips of the papillae.

SCHIELE (Z)

limit of safety for a complete prostatectomy was found to be 50 mgm of non protein nitrogen and 3.5 mgm of uric acid per 100 ccm. Experience has shown that if the values of these constituents are higher it is advisable to perform a preliminary suprapubic cystotomy and delay the enucleation until the values fall within the limits of safety.

The blood urea content is much less reliable than the non protein nitrogen and uric acid contents. A high blood urea content must always be regarded as a serious sign but reference to the tables presented by the authors shows that a low urea content can not always be regarded as an indication of normal kidney function.

In conclusion the authors state that laboratory findings should never be relied upon alone but should always be considered in their relation to the patient's clinical state.

JOHN G. CHEETHAM, M.D.

**Rolnick H. C.** Catheterization of the Ejaculatory Ducts. *Surg. Gynec. & Obst.* 1926 xlii 667.

In an examination of twenty nine autopsy specimens of the prostate posterior urethra ejaculatory ducts seminal vesicles vas deferens and testicles the author found that the urethral orifices of the ejaculatory ducts are often difficult to locate because of the fact that they open on the margins of or within the utricle.

When the seminal vesicles were injected through the ejaculatory ducts the fluid entered the vas deferens in only eight of the fifty eight specimens. Therefore medication of the seminal vesicles through the ejaculatory ducts seldom accomplishes its purpose since the ampulla of the vas deferens which is always involved in the pathological process can be injected in only a limited number of cases.

J. SYDNEY RITTER, M.D.

**Retterer E.** The Evolution of the Testicles of the Bull After Crushing of the Vas Deferens (Évolution du testicule du taureau après écrasement du canal déférent). *J. d'urolog. méd. et chir.* 1926 xvi 14.

The peasants of the Vosges use bulls for farm work. Up to the age of 2 years these animals are docile but after that they become violent and dangerous. To prevent this change the peasants crush the vas deferens by passing it through a groove in a cylinder placing a wedge of wood over it in the groove and striking the wedge several times with a heavy hammer.

The entire obliteration of the vas deferens causes the epithelial lining of the semiferous tubules to become transformed slowly into reticular tissue. This process is not an atrophy but a simple hypertrophy due to a change in structure. Sexual libido and potentia coeundi decrease and finally disappear altogether. They can be reestablished by means of testicle grafts.

These facts indicate that the epithelium of the semiferous tubules is the source of the internal secretion of the testicle. AUDREY G. MORGAN, M.D.

## MISCELLANEOUS

**Kuemmell H. Sr.** Hæmorrhages from the Urinary Organs (Die Blutungen der Harnorgane). *Deutsche Ztschr. f. Chir.* 1925 cxvii 143.

In cases of hæmorrhage from the urinary tract certain conclusions can be drawn as to the focus of the disease from the nature of the hæmorrhage.

1 If the blood flows spontaneously from the urethra without urination the source of the hæmorrhage is in the urethra.

2 If clear urine is passed at first and blood appears only at the end of urination the lesion is in the bladder.

3 When the urine is uniformly bloody the lesion may be in the bladder or the upper part of the urinary tract. Typical lesions in the upper urinary tract are worm shaped coagula formed in the ureter.

In cases of unexplained hæmorrhage from the urethra urethroscopy offers information.

In cases of bladder hæmorrhage it is possible to determine the nature and extent of the hæmorrhage by cystoscopy. The most important causes of bladder hæmorrhage are hypertrophy of the prostate tuberculosis papilloma and carcinoma. Varicosities of the bladder are very rarely the source of hæmorrhage. Vesical calculi and foreign bodies usually offer no diagnostic difficulties. Severe cystitis especially of the ulcerating and necrotic forms may give rise to severe hæmorrhages. Tuberculosis of the bladder is always secondary to primary tuberculosis of the kidney. Injuries of the bladder are usually associated with characteristic symptoms such as severe pain excruciating stranguary and inability to urinate. In ruptures of the bladder only small amounts of bloody urine are obtained even with a catheter. This so called bloody anuria is a positive sign of rupture.

In cases of hæmorrhage from the upper urinary tract the diagnosis is more difficult but catheterization of the ureters roentgenography and especially pyelography and tests of kidney function will reveal the nature of the condition. In cases of renal tumors the diagnosis is sometimes difficult particularly in the early stages.

Massive hæmorrhages may be caused also by polycystic degeneration of the kidneys.

The differentiation between tumor of the renal pelvis and tumor of the ureter is facilitated by pyelography which reveals form changes and filling defects. The results of operation on tumors of the renal pelvis and ureter are favorable.

In tuberculosis of the kidney the initial hæmorrhage is often the first sign. Tuberculosis should be suspected in every case of cystitis which is refractory to treatment and in which the urine is acid and contains leucocytes. The diagnosis is confirmed by the demonstration of tubercle bacilli by microscopic examination cultures and animal inoculations. Tuberculosis of the kidney is almost always a unilateral disease which infects the bladder secondarily.

The treatment is nephrectomy performed as soon as possible. Treatment with tuberculin has so far failed to cure.

In cases of hæmorrhage due to calculi the diagnosis is rendered easy by the X ray.

The diagnosis of renal injury is usually not difficult but as the severity of the injury cannot be judged from the amount of hæmorrhage exposure of the kidney resection of pieces of kidney which have been torn off union by suture or removal of the entire torn organ should be done early.

In conclusion the author discusses the difficulties in the differential diagnosis of renal hæmorrhages from nephritis and unknown causes. DENKS (Z)

**Bazy P. Horteloup's Resection of the Perineum for Complicated Gonorrhœal Strictures** (Résection du périnée pour rétrécissements blennorrhagiques compliqués méthode d'Horteloup) *J d urol méd et chir* 1925 xx 353

Bazy reports the case of a man of 45 years upon whom he performed an internal urethrotomy twelve years ago. After that operation the scrotum became greatly enlarged and an indurated mass the size of a hen's egg caused a protrusion of the perineum. At the second operation Bazy made a racket incision in the perineum by Horteloup's method and removed the indurated tissue from around the urethra. A retention catheter was left in place for six days.

Brief notes are given also on a number of similar cases in which gonorrhœal stricture of the membranous part of the urethra was complicated by induration or fistula.

The chief requirement in the operation is the removal of all sclerosed tissue. The incision must be carried into tissue that is normal or the scar will retract. Sclerosis is produced by attenuated infection and if an incision is made in the midst of sclerosed tissue the infection may be spread. In many cases the operation can be limited to a perineurethrectomy by simply removing sclerosed tissue. The urethra then remains supple and can be dilated as soon as the pressure of the indurated tissue is

removed. In other cases it may be necessary to resect from 2 to 5 cm of the urethra. Sometimes the entire circumference of the urethra must be resected, while in other cases there may be a band of normal mucous membrane on the upper surface which should be spared. If the distance between the two ends of the urethra is too great for suturing the ends may be brought closer together by threads. The urethra must be carefully dissected from the sclerosed tissue. Only sclerosed tissue need be removed even considerable œdema of the surrounding tissue will subside when the pressure of the induration is removed.

Horteloup believes that the wound need not be sutured but may be left to close spontaneously over a retention catheter. Bazy sutures the wound but like Horteloup does not find it necessary to remove the urine by suprapubic incision. It is well to leave a retention catheter in place for several days to prevent the entrance of urine into the tissues through a possible minute opening in the urethra. In cases of traumatic stricture in which there is no indurated tissue and it is practically certain that an exact union of the two ends of the urethra can be brought about, preliminary drainage of the urine through a suprapubic incision is of advantage. Bazy uses for internal urethrotomy a special instrument of his own by which three incisions may be made—one on the left inferolateral surface of the urethra, one on the right inferolateral surface and one on the upper surface—and incision can be limited to the strictured area. Sometimes when there are strictures of other parts of the urethra the perineal or scrotal perineurethrectomy should be supplemented by internal urethrotomy of the constricted parts.

Some surgeons maintain that stricture of the membranous part of the urethra does not result from gonorrhœa but Bazy and Decloux have demonstrated such strictures by macroscopic and microscopic examination. They admit however, that they may be only prolongations of a stricture of the premembranous or anterior urethra.

AUDREY G. MORGAN M.D.



# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS, ETC

Abramowa A. Exostosis Bursata (Zur Frage der Exostosis bursata) *Zentralbl f Chir* 1925 li 2649

The author briefly reviews the theories that have been advanced with regard to the pathogenesis of exostosis bursata and then discusses the treatment especially the surgical treatment employed for this condition

Exostosis bursata is a benign tumor that arises from the epiphyseal portion of the bone. It consists of bone and cartilaginous tissue covered by a connective tissue capsule

It occurs most frequently on the femur, shoulder, jaw and phalanges and is found more rarely on the tibia, clavicle, pelvis, ribs, vertebrae and other bones

Abramowa reports an instructive case discussing the anatomicopathological and X-ray findings and the treatment. This case is of special interest because free bodies were found in the capsule

STEGEMANN (Z)

Cokkalis P. Dupuytren's Contracture of the Palmar and Plantar Aponeuroses (Dupuytren's Contracture der Palmar und Plantar aponeurose) *Deutsche Zeitschr f Chir* 1926 cxiv 256

Numerous theories have been advanced as to the cause of Dupuytren's contracture but none has been entirely satisfactory. Krogius studied the hereditary aspects of the condition. In the early stages of development small muscles are found in the hands and feet instead of the connective tissue and fascial sheaths. Even in the newborn infant the palmar aponeurosis contains striated muscle elements. Therefore it must be regarded as a tendon structure of muscular origin. This theory is supported by the fact that similar changes are found also in the feet

The author reports a case in which the contracture occurred first in both hands and a year later in the feet

BRAUN (Z)

Wilensky A O and Samuels S S. Osteomyelitis of the Sternum *Ann Surg* 1926 lxxviii 206

This article reviews the literature of osteomyelitis of the sternum and summarizes the findings in twenty-one cases previously reported. To these cases are added three new ones. The sternum is the site of the infection in about 0.003 per cent of cases of osteomyelitis

The authors review the pathogenesis of the condition and discuss its complications

FREMONT A CHANDLER M D

Allison N and O Connor D S. Cysts of the Semilunar Cartilages. Report of Two Cases of Cyst of the External Semilunar Cartilage and One Case of Cyst of the Internal Semilunar Cartilage *Surg Gynec & Obst* 1926 xli 259

Allison and O Connor review the literature of cysts of the semilunar cartilages and add two cases of cysts of the internal semilunar and one case of cysts of the external semilunar. They summarize the characteristics of the cases as follows

- 1 The cysts were multilocular
- 2 Except in one case they have no endothelial lining
- 3 There was no evidence of an inflammatory reaction
- 4 They were filled with a mucoid substance
- 5 In all cases they were located in the mid portion of the semilunar cartilage on the external border
- 6 In one half of the cases there was a definite history of injury
- 7 The cysts reached their maximum size quickly and then remained stationary
- 8 Most of the patients were in the second decade of life
- 9 Spontaneous recovery never occurred. Recurrences sometimes developed when the entire cartilage was not removed
- 10 Pain was noted on complete extension and acute flexion of the knee

FREMONT A CHANDLER, M D

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Jessen H. The Importance of the Periosteum in the Origin and Treatment of Pseudarthroses (Ueber die Bedeutung des Periosts bei der Entstehung und Behandlung der Pseudarthrosen) *Arch f klin Chir* 1925, lxxvii 289

The author discusses the theories of Lexer and Bier as to the pathogenesis of pseudarthrosis. He is inclined to accept the viewpoint of Lexer regarding the great importance of the periosteum and its nourishment in the formation of callus. He accepts also the theory of Sudeck concerning the importance of the 'dead spaces'. The trauma producing the fracture causes also spaces in the soft tissues which the surrounding muscles cannot fill. Blood gathers in these spaces and the formation of callus begins here later. The development of callus will be the more extensive the larger the dead spaces providing they are lined with sufficient periosteum

Stripping of the periosteum from the bones is not in itself injurious but stripping of the musculature from the periosteum greatly hinders bony healing. The tendency of the callus to extend depends not

on unknown hormonal stimuli as Bier thinks, but upon the filling in of the dead spaces by new bone, as suggested by Sudeck. Moreover, the formation of parosteal callus depends, not upon metaplasia, but upon misplaced periosteum. The mystery of traumatic myositis ossificans is similarly cleared up.

The practical results of Sudeck's very simple periosteal theory are illustrated by several successful operations for pseudarthrosis. These operations were divided into three parts: replacement of the fracture ends, joining of the fracture ends, and the replacement of the periosteum. The third part is of special interest because of the use of Sudeck's method of transplanting the periosteum which consists in cutting it circularly and placing it, together with its muscular attachments, over the site of the fracture. The good results of this procedure are evident in the roentgenograms. **Bonn (Z)**

**Naervi E. J. Contributions on the Regeneration of Tendons and the Treatment of Tendon Ruptures Particularly in the Region of the Synovial Sheaths. *Acta chirurg. Scand.*, 1926, 14, 1.**

After tenorrhaphy the ends of the tendon are united by granulation tissue formed by the connective tissue of the external and internal peritenon and the tissues surrounding the tendon. The ends remain passive and do not seem to form any new tissue. The connective tissue outside the tendon forms more of the granulation tissue between the ends than the peritenon and is therefore of more importance for the healing of the tendon wound.

In the endothelium covered sheath of the tendon the peritenon grows over the ends of the tendon forming a kind of amputation stump which does not unite. But if sutures are passed through the cut surface, granulation tissue is formed from the peritenon along and around them and this is later transformed into a tendon like tissue uniting the ends. Therefore the sutures used by Wilms, Lange, and Frisch are more appropriate than those used by Dreyer, Woelfler, Trinka, and Schuessler which avoid the cut surface.

The synovial fluid does not affect the regeneration of the tendon disadvantageously nor check it. The form and the structure of the cicatrix of the tendon are consequently quite the same within and outside of the sheath of the tendon.

For the restoration of function it is necessary to spare the sheath of the tendon in order to facilitate the gliding movement and to keep the tendon in correct position. Only by regular exercises without immobilization is it possible to prevent adhesions of the tendon and, in cases of ruptured flexor tendons, to obtain the best possible functional results.

**Abbott L. C. and Jostes F. A. A Simple Method for the Correction of Deformity in Bony Ankylosis of the Hip Joint. *Surg. Gynec. & Obst.* 1926, 41, 274.**

For the correction of deformity in ankylosis of the hip the authors describe a procedure which

overcomes many of the difficulties associated with immediate correction by osteotomy.

A subtrochanteric osteotomy is done and the limb fixed in the position of deformity by traction with a Thomas splint. Gradual correction is secured by moulding of the callus caused by changing the position of the extremity.

A transverse osteotomy is performed through an incision separating the tensor fasciae femoris and the sartorius muscles and exposing the femur between the vastus lateralis and rectus femoris muscles. The wound is then closed anatomically. After the operation the patient is placed on a gas pipe bed frame of ingenious design and a Thomas splint is applied in the position of deformity, the traction on the leg being maintained. This is left in place for from four to five weeks or until abundant new callus is shown by the X-ray. Gradual correction is then secured by bringing the traction splint to the desired position.

The time necessary to correct the deformity is about four weeks. The corrected position is maintained until consolidation of the callus occurs. During this slow manipulation the pelvis is controlled by holding the sound leg flexed at the hip with the knee extended, the reverse of the Thomas test for hip flexion. During the period of consolidation of the callus the thigh and calf are massaged. When the patient becomes ambulatory, a Thomas caliper splint is worn for several months.

The authors have used this method in four cases, which they report in detail.

**Fremont A. Chandler, M.D.**

## FRACTURES AND DISLOCATIONS

**Thomas T. T. Habitual or Recurrent Dislocation of the Shoulder. *Med. J. & Rec.* 1926, CLXIII, 145.**

A typical subacromion dislocation by hyperabduction was first produced in the cadaver by Davis in 1899, but the axillary operation was first performed by Thomas in 1908. In the author's first case no dislocation has occurred since.

The gap between the divided margins of the capsule becomes bridged by scar tissue. The objection to other incisions is that they do not give a good exposure of the axillary portion of the capsule where the tear invariably occurs. The acceptance of the axillary operation has been retarded by a general lack of familiarity with the axillary vessels and nerves.

Athletes and epileptics are especially liable to develop recurrent dislocations of the shoulder. In the author's opinion, snapping shoulder is a recurrent dislocation in which the tear is not sufficiently great to allow displacement of the head out of the glenoid fossa. It may be corrected by capsular raphy.

Of thirty three cases traced following capsular raphy, a complete cure resulted in twenty two. In six cases the operation was followed by only one dislocation and in two cases by two dislocations. Such

dislocations the author believes are of advantage when the amount of scar tissue already formed is not sufficient to prevent them. The slower the return of motion after capsulorrhaphy the stronger the joint. Thomas believes that if the surgeon is familiar with the relations of the circumflex nerve the prognosis offered by the operation is good.

ROBERT V. FENSTER, M.D.

**Thomson J. E. M. Fixation of Fractures of the Clavicle. Another Method.** *J. Am. M. Ass.* 1926 LXXVI 1317

Thomson describes the use of plaster of Paris in the treatment of fractures of the clavicle particularly those of the outer end where reduction and immobilization are necessary for both the union of the bone and the treatment of the usually associated shoulder injuries.

For fractures of the proximal and middle thirds a figure of 8 plaster cast is applied over a sheet wadding bandage while the arms are held abducted up and backward. This cast embraces the chest and can be cut out about the neck and arms without being weakened. It is worn for four weeks. A muslin bandage is then applied for a time.

When the fracture is in the outer third of the clavicle the cast covers the whole trunk and includes an arm spica which immobilizes the arm abducted at 90 degrees with the forearm horizontal and supinated. After two and one half weeks the upper part of the arm cast is removed for physiotherapy and after four weeks the whole spica is removed. An immobilizing muslin and adhesive dressing is then applied for another week or two.

This treatment allows the joint injuries to heal and reduces the period of painful shoulder disability which often follows.

CHESTER C. GUY, M.D.

**Cutler C. W. Jr. Fractures of the Head and Neck of the Radius.** *I. J. Surg.* 1926 LXXVIII 267

Cutler reviews fifty cases of fracture of the head and neck of the radius which were treated at the Roosevelt Hospital, New York, in a period of ten years. The incidence of these fractures was about the same in both sexes. The average age of the patients was 31 years. The youngest subject was 6 years old and the oldest 53 years. The average age of patients with fractures of the neck of the radius alone was 18 years while that of those with fracture of the head of the radius alone was 37 years.

In twenty cases (40 per cent) the cause was direct trauma to the elbow in a fall and in ten cases (20 per cent) a fall on the extended hand.

Examination revealed simple cracking without displacement in seven cases, fissuring of the radial head with separation of one fragment in fourteen cases, fracture into multiple fragments in eleven cases and fracture of the neck of the radius in four cases. Direct and indirect trauma were both apparently capable of producing any of the four types of fracture mentioned.

In one case each the fracture of the radius was complicated by posterior dislocation of the ulna posterior dislocation and fracture of the olecranon fracture of the coronoid and fracture of the upper third of the ulna.

In nearly all of the cases the pain was referred to the lateral side of the elbow and in all one or more of the motions at the elbow was inhibited. Swelling about the elbow was noted in two thirds of the cases seen within twenty four hours. Ecchymosis was not common. Direct or indirect tenderness was present in forty three cases.

The treatment was carried out along conservative lines except in cases showing marked displacement of the fragments or late impairment of function.

TREMONY V. CHANDLER, M.D.

**Christopher F. Fractures of the Head of the Femur.** *Arch. Surg.* 1926 LIII 1049

This study is based on nine fractures of the head of the femur eight of which have been reported in the literature and one of which was treated by the author. The condition is caused by extreme violence and is exceedingly rare. In all of the reported cases it was accompanied by a posterior dislocation and was probably due to the impact of the dislocating head on the posterior rim of the acetabulum. Its possible presence should be considered whenever a posterior dislocation is associated with crepitus on passive motion but the diagnosis must be confirmed by X-ray examination.

The treatment of choice is closed reduction under general anesthesia followed by early active and passive mobilization. If this fails open reduction with removal of the fragments of the fractured head is necessary. Operative treatment is indicated also when although closed reduction seems successful function becomes progressively poorer. Regardless of the treatment the prognosis as to function is unfavorable.

CHESTER C. GUY, M.D.

**Garr C. C. A Spontaneous Fracture Following Bone Banding for Fractures.** *J. Bone & Joint Surg.* 1926 VIII 371

The author reports two cases of spontaneous fracture of the femur following banding by a competent surgeon. Both fractures were due to muscular action. One was subtrochanteric and the other intercondylar.

Garr agrees with Scudder that bone bands should be routinely removed. He always removes the band within one month of its application.

DAVID H. LEVINTHAL, M.D.

**Albee F. H. Mechanical Employment of Sequestrum Fracture of the Femur.** *J. Bone & Joint Surg.* 1926 VIII 325

Albee reports the case of a boy 17 years old who sustained a compound comminuted fracture of the lower central portion of the shaft of the left femur. The first treatment consisted in wide open drainage and Carrel Dakin irrigation. At the end of a month

a Lane plate was applied, but fragments became displaced and there was 2 in. of shortening.

Three months after the injury, the wound was reopened, the displaced fragments and an extensive osteomyelitis being then disclosed. The lower  $4\frac{1}{2}$  in. portion of the upper fragment was white and showed a V shaped line of sequestering demarcation. The fragment ends were re shaped to form a concavity in the sequestering portion and a corresponding convexity of the lower fragment, the ends then being approximated with traction and the mortise further secured with kangaroo tendon. The wound was packed with iodoform gauze and the leg immobilized by a plaster of Paris spica.

At the end of four and one half months an X ray examination through the cast showed the formation of callus and an involucrum. The sequestrum was removed through a window in the cast. The con-

dition progressed favorably and the patient was discharged five and one half months after his injury.

Physiotherapy was then instituted, but because of the limitation of motion at the knee, another operation was done. This showed adhesions between the shaft of the knee and the quadriceps. After liberation of the adhesions, a piece of fascia lata was inserted between the femur and muscle. However, in spite of strenuous physiotherapeutic measures, only 30 degrees of motion at the knee could be obtained.

Subsequently an attempt was made to flex the knee by force under general anaesthesia. This was prevented by tense fascial bands on the anterior and lateral aspects of the lower portion of the thigh. Subcutaneous fasciotomies were therefore done.

The limb is now only  $\frac{3}{4}$  in. short and has free, active and painless motion to beyond a right angle.

ROBERT C. LOVERGAN, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

**Haberer H** A Case of Successful Suture of the Portal Vein (Ueber einen Fall von erfolgreicher Naht der Vena portæ) *Hann med Wchnschr* 1925 lxxv 57

Haberer reports a case in which in the course of a gastroduodenal resection for an ulcer in the middle of the stomach there occurred the exceedingly rare complication of injury of the portal vein. He was able to meet the emergency successfully. The case was one of hourglass stenosis. The stomach and the first part of the duodenum were closely adherent to the undersurface of the liver. These adhesions which were found due to the penetration of a callous ulcer deep into the liver were very difficult to loosen.

The ulcer was shelled out of the liver with an electric cautery and a thick strand which was most intimately adherent to the ulcer tumor was cautiously incised longitudinally. This resulted in a very copious hemorrhage. The author introduced his finger into the foramen of Winslow and thereby stopped the bleeding so that he was able to make a careful examination as to its source. He found that the blood came from a vein the size of the finger which had been slit open on its anterior wall for a distance of 4 cm. This vein proved to be the displaced portal vein.

As it was possible to keep the vessel closed off with the finger which had been introduced into the foramen of Winslow the slit in the vessel was closed with ease with interrupted sutures and without evident narrowing of the vessel lumen. Recovery resulted.

To prevent air embolism and hemorrhage in cases of injury of the portal vein the author recommends compression of the hepatoduodenal ligament by raising it up on a finger introduced into the foramen of Winslow. No form of tamponade and compression from in front gives as good results.

COLLEY (Z)

**Pfaff O G** Ligation of the Inferior Vena Cava 13 *J Obst & Gynec* 1926 xi 660

The author reports a case in which the vena cava ruptured into a retroperitoneal cyst and he ligated above and below the rupture. An almost uneventful recovery resulted. Ten days after the operation a slight swelling in the legs and thighs became apparent but two years later the patient was in good health.

Such cases show that ligation of the inferior vena cava (at least in a favorable situation) is not necessarily a disaster. It seems to be clear that the col-

lateral circulation is rapidly developed to the extent that after a few weeks the early edema is only slightly evident and eventually disappears altogether.

As a rule ligation is probably safer than suture of the wounded vessel but if the site of injury is found at or above the renal vein every effort must be made to repair the vessel as ligation in that locality would inevitably be disastrous.

E L CORNELL M D

## BLOOD TRANSFUSION

**Rubin E H** The Clinical Value of the Erythrocyte Sedimentation Reaction in Surgery *Surg Gynec & Obst* 1926 xlv 652

The sedimentation reaction is the speed with which red blood cells settle in a citrated column of blood. The author uses the following method for this test:

Into a sterile 2 c cm Record syringe a solution of 3.8 per cent sodium citrate is drawn up to the 0.4 mark. Blood is then aspirated from an arm vein to the 2 c cm mark, a dilution of 1:4 being thereby obtained. After thorough mixing in small Wassermann test tubes the samples are taken to the laboratory where the blood is drawn up into long serological pipettes graduated into hundredths which are placed in a suitable rack, the layer of plasma then being observed at the end of one, two and twenty-four hours and read directly in per cent.

The reading made at the end of the second hour is the most significant one.

After studying the reaction in 100 cases Rubin summarizes his findings as follows:

1. In surgery the erythrocyte sedimentation reaction was found to be a more reliable indication of the patient's condition than the temperature chart.

2. Its diagnostic and prognostic value were secondary to its value in indicating the acuteness of a process.

3. Extrasurgical complications such as syphilis or tuberculosis tended to maintain high readings in spite of improvement in or even a cure of the surgical affection. In the absence of such complications repeated tests may guide in the discharge of patients but for many reasons it would be impractical to keep patients in the hospital until the reaction reaches normal limits.

4. Because the test indicates the severity of tissue destruction it should be of value in determining the advisability of operation and the time at which it should be performed.

JOHN J MALONEY M D

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE, POSTOPERATIVE TREATMENT

Davis J S The Treatment of Deep Roentgen-Ray Burns by Excision and Tissue Shifting  
*J Am Med Ass*, 1926, lxxxvi 1432

The author states that when in cases of deep roentgen ray burns, the ordinary local methods have been tried for a reasonable length of time without satisfactory results, nothing is to be gained by the further delay of operative measures. In none of the cases referred to him has treatment with ultra violet or other rays been beneficial. Early excision of deep burns with tissue shifting promises more surely than any other method yet known a prospect of permanent relief in a comparatively short time.

The excision of the ulcer and the surrounding area of induration should be as radical as possible. Occasionally, when the exposed tissues seem normal and the excision has been complete, the author grafts skin immediately, but in the majority of cases, in which general oozing occurs, he first covers the wound with perforated cellosilk or with gauze impregnated with a 3 per cent bismuth tribromophenate (xeroform) ointment and then packs the depression snugly with sterile sea sponges.

After forty eight hours the dressings may be removed without causing pain or bleeding, and after a few days during which compresses saturated with physiological sodium chloride solution are applied continuously the granulations usually sprout and are ready for grafting. Gauze saturated with balsam of Peru, one part and castor oil, three parts is also used to stimulate granulations.

In the greater number of cases requiring grafting the author prefers small deep grafts. Occasionally he uses Ollier Thiersch grafts, but when the defect is large he prefers whole thickness grafts. In a number of cases he has used pedunculated flaps from neighboring tissues which have not been changed by the rays or from a distant part and has found them of great value when a pad of fat was necessary in addition to the skin.

If conditions are favorable, the flap is shifted onto the fresh wound immediately after the excision of the burned area but if the shifting is delayed the results are better if the granulating area is removed before the flap is sutured into its new bed.

When the burn is comparatively small and in a favorable position it may be excised completely by an elliptical incision and the skin then closed with sutures after undercutting. Massage is begun on the grafts about three weeks after healing has taken place and is continued for several months.

By this treatment pain is eliminated and in many instances patients who have been incapacitated for

years are enabled to return to their former activities.

Davidson, E C The Prevention of the Toxæmia of Burns Treatment by Tannic Acid Solution  
*Am J Surg*, 1926 xl, 114

If a severely burned patient survives the acute period of depression or shock, another syndrome develops viz, that of toxæmia. In the cases of twelve patients with second degree burns and twelve with third degree burns the blood chlorides were found to be very low. Sodium chloride was therefore administered orally rectally, subcutaneously, or intravenously as indicated.

In the belief that the toxæmia is due to the absorption of a protein derivative at the site of the burn the author coagulates or precipitates the devitalized tissue by applying a dressing wet with 2.5 per cent tannic acid. He has found that this lessens the toxæmia, exerts an analgesic effect, limits secondary infection, promotes epithelialization and limits scar formation. After the tissues become a light brown the dressings are removed and the area is exposed to the air. J FRANK DOUGHTY, M D

Selfert E Bacteria in the Blood After Operations  
(Ueber Bakterienbefunde im Blut nach Operationen) *Arch f klin Chir* 1925, cxxviii 565

After an operation on an infected region of the body, bacteria appear in the blood in a relatively large number of cases. It seems that this depends to some extent on the nature of the exciting organism. In the cases reviewed by the author the blood findings were positive in 54 per cent of the cases with a staphylococcal infection, 30 per cent of those with a streptococcal infection, and 25 per cent of those with a bacillus coli infection. It is evident also that the anatomical relations of the disease focus are of great importance. Operations on tissues rich in veins are more apt to be followed by bacteræmia than those on other tissues.

After operations on acute abscesses and phlegmons, defective localization of the processes is evidenced by positive bacterial findings in the blood in 50 per cent of the cases, whereas after operations on older, better walled off subacute and chronic processes bacteria are found in the blood in only one fifth of the cases. Other factors of importance in bacteræmia are the method of operation and the handling of the tissues.

In 204 cases of operation on a purulent condition, postoperative bacteræmia developed in ninety one. In general, postoperative bacteræmia is usually not associated with alarming phenomena. In none of the cases observed by the author has a septic condition developed. WOLFF (C)

# MISCELLANEOUS

## CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

**Slye Maud** The Inheritance Behavior of Cancer as a Simple Mendelian Recessive Studies on the Nature and Inheritability of Spontaneous Cancer in Mice *J Cancer Research* 1926 v 15

In every test made in studies of the nature and inheritability of spontaneous cancer in mice every neoplasm has been found to occur in accordance with the mendelian expectation for a simple recessive

The cancer resistant and the cancer susceptible tendencies have been proved inheritable

By the hybridization test the tendency toward cancer resistance has been proved to be dominant over the tendency toward cancer susceptibility and both of these tendencies have been proved unquestionably inheritable following the mendelian pattern very closely

The types of cancer and the sites where cancer is likely to occur have been proved inheritable by both the inbreeding and the hybridization tests. These characters also have closely followed the mendelian pattern **JOSEPH K. NARAYAN M.D.**

**Burrows M. T.** The Mechanism of Cancer Metastasis *Arch Int Med* 1926 xxxviii 453

In Burrows' opinion the cancer cell is merely a normal cell reacting to stagnation and cell crowding in its immediate environment

Cancerous and embryonic tissues are rich in a substance or substances (archusia) which accumulate in a stagnant environment. Adult tissues contain only traces of these substances

The chief course of metastases of cancer is always along the lines of surface drainage from the original tumor mass

Metastases in cancer are not due to a simple migration of cancer cells from the cancer to distant organs but are primarily the result of the spread of a liquid substance from the main tumor mass. This substance is liberated through the digestion of cells in the center of the mass of cancerous tissue. It is a product of the oxidation of the cell and is rich in growth stimulating substance. It stimulates not only cancer cells but also normal cells. It can flow over any water surface. The cells move into it. The fluid precedes the spread of cancer cells and metastases

The author concludes that the whole phenomenon of cancer can be reproduced by simply cutting down the blood supply to a cellular tissue and allowing the cells to revert from the differentiated to the growing state **JACOB S. GROVE M.D.**

**De Asis C.** Cutaneous Carcinoma of the Lower Extremities *Ann Surg* 1926 lxxviii 663

The author discusses the varieties of carcinoma occurring in the lower extremities and the course taken by the disease in this region of the body. The two most important types of cutaneous carcinoma are the squamous cell and the basal cell types. Males are more frequently affected by cutaneous carcinoma than females. The ages of four of the author's patients ranged from 20 to 32 years. Trauma is an important factor in the etiology. The period of time elapsing between the injury and the first appearance of malignancy ranges from a few months to a year. Another predisposing factor is the scar of an old burn. Syphilis also has been regarded as of importance in the etiology but of the author's seven cases in which a Wassermann test was made only one gave a positive reaction and in the latter there was a history of trauma at the site of the cancerous growth. The part played by varicose ulcers and varicose veins is unknown but in 370 cases of varicose ulcers the author found malignancy in only one.

Metastasis takes place late in cutaneous carcinoma of the lower extremities. This is explained by the fact that the edge of the ulcer undergoes thickening and induration which squeezes the lumina of the lymphatic vessels and thus prevents the flow of lymph which ordinarily carries cancer cells.

The choice of treatment is determined chiefly by the extent of the malignancy, the nature of the growth and the surgeon's experience with the various procedures. The procedures most commonly used are amputation of the limb, excision with the cold knife or cautery, x-ray irradiation, electrocoagulation or a combination of these.

The author reports seventeen cases in detail

**EMIL C. ROBITSCHK M.D.**

**Blair Bell W.** Theory and Practice in Relation to the Treatment of Cancer with Lead *Brit M J* 1926 i 637

The author states that malignant neoplasia appears to be a reversion of the somatic cell to the early embryonic type which forms the trophoblast.

Pathologists have discussed the undifferentiated cells seen in malignant growths but strictly speaking these should be called dedifferentiated cells since they are normal cells which have retraced their way back to undifferentiation.

Morphological evidence shows that whereas benign neoplasia is the result of hyperplasia in normal tissues, malignant neoplasia is a process of dedifferentiation except in the case of chorion epithelioma which represents hyperplasia of a normally malignant tissue—the chorionic epithelium.

Warburg has shown that although in the absence of oxygen, a normal resting cell has a slight glucolytic power, in aerobic conditions it does not perform glucolysis, whereas malignant tissue exerts its glucolytic power even in the presence of oxygen.

The author believes that sufferers from lead poisoning are not affected by cancer.

With regard to treatment he states that the use of colloidal lead in the prevention of recurrence after operation is of such importance that every case subjected to operation for cancer, whether the disease is believed to be totally eradicated or not, should be treated as if the disease were still present.

Mention is made of the fact that, in the use of colloidal lead, disasters have occurred as the result of lead poisoning.

JACOB S. GROVE, M.D.

#### GENERAL BACTERIAL, PROTOZOAN, AND PARASITIC INFECTIONS

Wainwright, J. M. Tetanus. Its Incidence and Treatment. *Arch Surg* 1926 xii 1062

Of 584 men answering a questionnaire sent out by Wainwright, nearly all of whom have had extensive experience with industrial and traumatic cases, 365, or nearly two thirds, stated that they had seen no tetanus in the last four years (1921-1924) in industrial cases.

It seems universally agreed by laboratory workers that when tetanus toxin has once united with the cells of the central nervous system the antitoxin has no power to break up the union and it would do no good to bathe the cells in antitoxin even if this were possible. Moreover, there is no evidence that the antitoxic serum injected into the spinal canal gets into the tissues of the cord and brain and as it has been established that the toxin is not present in the cerebrospinal fluid during the disease, no toxin is neutralized by spinal injections.

Antitoxin given by vein in doses of from 30,000 to 50,000 units or more, according to the severity of the symptoms and the time since the onset of the condition, will divide the present average mortality rate by two or three or more. The efficiency of this dose and route depends directly upon the promptness with which the treatment is given. If the dose must be repeated it should be approximately the same size as the initial dose and given by vein only. In the last days of convalescence intramuscular injections are allowable.

The best sedative is chlorbutanol given by mouth in a dose of 30 gr dissolved in hot whisky or by rectum in a dose of 75 gr in hot olive oil. It should be repeated sufficiently often to keep the patient relaxed and drowsy until the danger is passed.

MORRIS H. KAHN, M.D.



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NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

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### Hospitals Medical Education and History

Selecting a hospital for an internship H A CHRISTIAN  
J Am M Ass 1926 lxxvi 1499

Illumination of the operating room with natural and  
artificial light L DRLENER Zentralbl f Chir 1925 iii  
2869

Medical education and medical service some further  
facts and considerations W A PILSEN J Am M Ass  
1926 lxxvi 1501

Medical education and the Yale announcement C R  
STOCKARD J Am M Ass 1926 lxxvi 1508

The university surgical clinic its functions and organi-  
zation D LEWIS J Am M Ass 1926 lxxvi 1493

### Medical Jurisprudence

The medicolegal aspects of burns and scald G T  
PICK Internat J Med & Surg 1926 xxvii 210

# International Abstract of Surgery

*Supplementary to*

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## CONTENTS

I	Index of Abstracts of Current Literature	iii
II	Authors	ix
III	Editor's Comment	x
IV	Abstracts of Current Literature	361 423
V	Bibliography of Current Literature	424 446

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# CONTENTS—NOVEMBER, 1926

## ABSTRACTS OF CURRENT LITERATURE

### SURGERY OF THE HEAD AND NECK

<b>Head</b>	
JENKINS, G J BALLANCE SIR C SCOTT S TWEED, A R., and Others Discussion on Fracture of the Base of the Skull and the Ear, Nose and Throat Surgeon	361
GRUCA A and MEISELS E Asymmetry of the Mandible from Unilateral Hypertrophy	362
MAGATON O A Case of Total Necrosis of the Mandible Due to Acute Infectious Osteomyelitis	362
PULFORD D S and ADSON A W Surgical Removal and Pathological Study of a Massive Squamous Cell Epithelioma Associated with an Angioma of the Scalp	362
TAVARES, A A Cavernous Hemangioma of the Upper Lip	362
<b>Eye</b>	
KEY B W The Influence of Protein Therapy on the Experimental Staphylococcal Infection of the Rabbit's Cornea	363
<b>Ear</b>	
MILLIGAN SIR W Hemorrhagic Types of Ear Disease Occurring During Epidemics of Influenza	364
MALLA W J Experiments on the Sacculus Edolymphaticus in the Rabbit	364
HEMPSTEAD B E Six Cases of Definite Mastoiditis in Which the Middle Ear Was Definitely Not Affected	365
SMYTH D C A Skin Periosteal Flap for the Radical Mastoid	365
<b>Nose and Sinuses</b>	
MANGABEIRA ALBERNAZ P The Pathogenesis of Polyps of the Septum The Polyp of Leishmaniasis	365
SARGON, Radium in the Treatment of Tumors of the Nasopharynx	366
CHATELLIER H P and DARIAUX A Stereocentography as a Method of Exploring the Cranial Sinuses	366
REVERCHON and TSIROS An Ethmoidal Mucocoele with Extensive Invasion of the Orbit	367
<b>Mouth</b>	
CAMPBELL, A The Closure of Congenital Clefts of the Hard Palate	368
<b>Pharynx</b>	
BAUM H L The Radical Cure of Peritonsillar Abscess	368

### Neck

GRAHAM A The Thyroid Gland in Relation to Toxic Goiter	368
CRILE G W The Surgical Treatment of Goiter	369
LAOWIG A Follow Up of Patients Operated upon for Basedow's Disease	369
BOATTIN G Thyroid Grafts	370
THOMSON SIR ST C Tuberculosis of the Larynx Treatment with the Galvanocautery Indications Results Technique	370
WOODBURN J J Enchondromata of the Larynx	370
NEW G B Surgical Diathermy in Laryngology	371

### SURGERY OF THE NERVOUS SYSTEM

<b>Brain and Its Coverings, Cranial Nerves</b>	
REVEL BARBEZIER and DE MARTEL A Case of Otic Abscess of the Cerebellum	372
LAMPE W The Efficacy of the Substance of the Posterior Lobe of the Human Hypophysis	372
LUND R Considerations on the Surgical Treatment of Tumors of the Hypophysis	373
HAMMES E M Spontaneous Meningeal Hemorrhage With a Report of Seven Cases	373
PEET M M Advanced Meningococcus Meningitis Treatment by Combined Ventricular Cisternal and Lumbar Punctures	374
KOLMER J A Chemotherapy and Serum Therapy of Pneumococcus and Streptococcus Meningitis	374
PRECLIPIN E and DE MARTEL T Neuralgia of the Trifacial Nerve of Seven Years Duration Relieved by Simple Intrabuccal Resection of 3 Centimeters of the Left Lingual Nerve Persistence of the Cure After Twenty Five Months	374
SEARS W H Otogenic Paralysis of the Abducens, With Especial Mention of Isolated Palsy Associated with Irritation of the Gasserian Ganglion	375
<b>Spinal Cord and Its Coverings</b>	
PEPPER H The Results of the Roentgen Diagnosis of Diseases of the Spine and Spinal Cord with the Use of Iodipin Injections	375
<b>Peripheral Nerves</b>	
SERGEANT E BAUMGARTNER R and BORDET F Eight Cases of Phrenicectomy	376
<b>Sympathetic Nerves</b>	
JONVESCO T and JONVESCO D Experimental and Clinical Investigations of the Functional Condition of Heart and Blood Vessels Following Excitation of Cervicothoracic Sympathetic Chain	376

## SURGERY OF THE CHEST

## Chest Wall and Breast

- WARREN S L The Bacterial Flora of Cancer of the Breast 378
- PFÄHLER G F and WIDMANN B P The Relative Value of Various Techniques in the Radiation Treatment of Carcinoma of the Breast as Reflected in the Statistical Analysis of 701 Private Cases with Observations as to the General Value of Radiation 378
- KLOPF E J BILLINGS A E MANGES W F and GIBBON J H Symposium on Surgery of the Breast 378

## Heart

- JONNESCO T and IONESCU D Experiments and Clinical Investigations of the Functional Condition of the Heart and Blood Vessels Following Extirpation of the Cervicothoracic Sympathetic Chain 376

## Trachea Lungs and Pleura

- POUZIN MALEGUE Y Separation of a Pleural Adhesion in the Course of the Fourth Year of Insufflation of an Artificial Pneumothorax 380
- MANGES W F Non Opaque Foreign Bodies in the Air Passages Roentgen Ray Diagnosis and Localization 380
- TUCKER G Recent Developments in Peroral Endoscopy (Esophagoscopy and Bronchoscopy for Disease Report of Cases 381
- KERN P A Lung Abscess from the Medical Standpoint 382
- PANCOAST H K The Roentgen Ray Diagnosis of Lung Abscess 382
- TUCKER G Bronchoscopy Treatment of Lung Abscess 382
- MULLER G P Surgical Aspects of Lung Abscess 382
- LAMBRET O Preventive Vaccination Against Pulmonary Complications in Operations on the Stomach 386
- MCLEROY A L Pulmonary Tuberculosis Complicated by Pregnancy 402
- TORSSNER H SUNDILL C and KJELLIN G The Relationship Between Pregnancy and Tuberculosis 402

## Esophagus and Mediastinum

- GAUDIER H Median Sternotomy as a Palliative Decompressive Treatment for Tumors of the Mediastinum 384

## SURGERY OF THE ABDOMEN

## Gastro Intestinal Tract

- ROSE E The Relation of the Chlorides of the Body to Disease of the Gastro Intestinal Tract 385
- ABT I A and STRAUSS A A A Clinical Study of 221 Operated Cases of Hypertrophic Congenital Pyloric Stenosis 385

- ST JOHN F B Long Standing Ulcer of the Stomach 386
- LECÈNE The Role of Infection in the Development of Ulcers of the Stomach 386
- IAMBRET O Preventive Vaccination Against Pulmonary Complications in Operations on the Stomach 386
- DUVAL P ROUX J C GATELLIER and MOUTIER The Relations Between the Infectious State of the Gastric Wall and Certain Troubles Following Gastro Enterostomy Vicious Circle Acute Chronic or Delayed and So Called Gastrojejunal Peptic Ulcer 387
- ASCOLI M The Changes in the Gastric Chemistry After Resection of the Stomach 388
- CASE J T Diverticula of the Small Intestine Other Than Meckel's Diverticulum 388
- SARACENI F ANTONUCCI C and CELIBERTI A X Ray Visualization of the Duodenum by the Introduction of an Opaque Fluid Through the Einhorn Tube 389
- HALPERT B The Arterioenteric Occlusion of the Duodenum An Anatomical Study 389
- DRAPER J W The Pathogenic Colon 390
- DUKES C Simple Tumors of the Large Intestine and Their Relation to Cancer 390
- Liver Gall Bladder, Pancreas and Spleen**
- MCCOY C C and GRAHAM R S Cholecystography in Operative Cases 390
- GRAHAM E A COLE W H COPIER G H and MOORE S Cholecystography The Use of Phenoltetra Iodophthalen 390
- BAZIN A T Infections of the Biliary Tract A Stock Taking of the Diagnosis and Treatment 390
- McMASTER P D and ELMAN R Studies on Urobilin Physiology and Pathology VI The Relation of Biliary Infections to the Genesis and Excretion of Urobilin 391
- COLLISON G A and FOWWEATHER F S An Explanation of the Two Forms of Bilirubin Demonstrated by the van den Bergh Reaction 391
- LECÈNE P and MOULONGUET P Remarks on the Types of Mild Cholecystitis Termed Strawberry Gall Bladder 391
- JUDD E S Cholecystitis with Associated Problems 392
- MILLER J L The Medical Aspects of Gall Bladder Disease 392
- HERBST W P Some Phases of Biliary Surgery 392
- MULLER G P Certain Experiences with Gall Bladder Surgery 393
- GIBSON C L Aids to Cholecystectomy 393
- ST JOHN F B The Late Result of a Biliary Fistula with Implantation of the Fistulous Tract into Stomach 394
- HALE K A Study of the Accessory Pancreas 394
- COURBOULES Ruptures of the Pancreas in Abdominal Injuries 394
- CAPECHT E The Importance of the Spleen in Resistance to Infection as Indicated by a Case of Severe Puerperal Sepsis in a Woman from Whom the Spleen Had Recently Been Removed 394

## Miscellaneous

- DE MARTEL, T. The Contra Indications to Surgery in Acute Abdominal Affections 395
- RYLE, J. A. Visceral Pain and Referred Pain 395
- FIFIELD L. R., and LOVE R. J. McN. Subphrenic Abscess 397
- HERRICK, F. C. Pyelography in the Diagnosis of Tumors of the Flank 397

## GYNECOLOGY

## Uterus

- BULLARD E. A. A Study of the End Results of Operations for Uterine Prolapse at the Woman's Hospital, 1915-1925 398
- ASCHNER B. Conservative and Operative Treatment of Uterine Hemorrhage 398
- FERRACIU, D. The Experimental Production of Endometriomata 398
- PROUST, R., MALLET, L. and COLIET R. Cancer of the Cervix Treated with Radium at a Distance 399

## Miscellaneous

- NOYES I. H. Pelvic Inflammation in Women 399
- CHAMPLIN J. Jr. The Use of Milk Injections in Pelvic Inflammation 399
- MAGILL W. H. Thermotherapy in the Treatment of Pelvic Inflammation 399
- PRIBRAM E. The Cultural Method of Testing the Virulence of Bacteria from the Cervix and Vagina and Its Significance with Regard to Postoperative Morbidity and Mortality 400
- FUSS E. M. The Virulence Test in Gynecology and Obstetrics 401
- MILLER W. The Effect and Risks of Radium Treatment in Benign Gynecological Complaints 401

## OBSTETRICS

## Pregnancy and Its Complications

- GROENÉ O. On Chorea Gravidarum and Its Etiology 402
- FORSYNER H. SUNDELL, C. and KJELLIN G. The Relationship Between Pregnancy and Tuberculosis 402
- McILROY A. L. Pulmonary Tuberculosis Complicated by Pregnancy 402
- HOFBAUER J. The Defensive Mechanism of the Parametrium During the Period of Pregnancy and Labor 403
- BROWNE F. J. The Etiology of Accidental Hemorrhage and Placental Infarction. An Experimental Investigation 403
- FITZGIBBON G. A Revised Conception of Ante partum Accidental Hemorrhage 403
- STANDER H. J. and PECKHAM, C. H. A Classification of the Toxemias of the Latter Half of Pregnancy 404
- MILLER C. J. Glucose and Insulin in the Toxemias of Pregnancy 404

- CAUDIÈRE and GUÉRIN VALMALL. Maternofetal Blood Reactions 404
- WESTPHAL U. Ten Years' Experience with Eclampsia 405
- RUCKER, M. P. The Treatment of Eclampsia 405

## Labor and Its Complications

- THEOBALD G. W. A Plea for Drastic Reform in the Teaching of Midwifery 405
- WILLIAMS J. W. and SUN K. C. A Statistical Study of the Incidence and Treatment of Labor Complicated by Contracted Pelvis in the Obstetrical Service of the Johns Hopkins Hospital from 1896 to 1914 406
- GUÉNIOT and SUZOR. Rupture of the Uterus in a Case of Face Presentation. Hysterectomy 406
- YULE G. W. A Case of Caesarean Section in Twin Pregnancy 407
- STONE E. L. Obstetrical Shock 407

## Puerperium

- CAPECCHI E. The Importance of the Spleen in Resistance to Infection as Indicated by a Case of Severe Puerperal Sepsis in a Woman Who Had Recently Been Splenectomized 394

## Miscellaneous

- McCORMICK C. O. Outlet Pelvimetry and Its Importance 407

## GENITO-URINARY SURGERY

## Adrenal, Kidney, and Ureter

- PIERI, G. A Method of Operation for Floating Kidney 408
- PISANI L. Total Infarction of the Kidney from Traumatic Necrosis of the Vascular Peduncle 408
- HELMHOLTZ H. F. and BOWERS M. R. The Kidney. A Filter for Bacteria. VII. The Passage of Bacillus Coli Through the Kidney with Acute Staphylococcal Lesions 408
- NICHOLS B. H. Interpretation of the Pyelographic Shadow 400
- EISENDRATH D. N. and ARENS R. A. Variations in Normal Pyelograms. A Clinical Radiological Study 400
- GRANT O. Shadows in the Urinary Tract from a Practical Urological View 409
- D'AGATA G. Suture of the Renal Pelvis After Pyelolithotomy 409
- RUSCHE, C. F. Carcinoma of the Kidney 410
- ALLENBACH, BOECKEL and FRANCK. Imperforate Supernumerary Ureter. Diagnosis by Pyelography. Partial Nephro Ureterectomy 410
- STEWART, R. L. Primary Tumors of the Ureter 411

## Bladder, Urethra, and Penis

- RUBRITHUS H. and SCHWARZ O. Contribution to the Problem of Contracture of the Neck of the Bladder 411

AYSAGUER and PAPIN The Use of Heat and Cold in the Urethra	412
BOTTESSELLE R Modifications of Flap Urethroplasty in Penneal Fistula of the Urethra	412
<b>Genital Organs</b>	
CATTANEO G The Indications Technique and Results of Freyer's Prostatectomy	413
TENGWALL C Two Hundred and Fifty Suprapubic Prostatectomies for Hypertrophy of the Prostate	413
<b>Miscellaneous</b>	
YOUNG H H The Diagnosis and Treatment of Hematuria	414

## SURGERY OF BLOOD AND LYMPH SYSTEMS

<b>Blood Vessels</b>	
JONNESCO T and IONESCU D Experimental and Clinical Investigations of the Functional Condition of the Heart and Blood Vessels Following Extirpation of the Cervicothoracic Sympathetic Chain	376
NYSTROM G The Prognosis and Technique of Embolotomy	415
GIORDANO D Aneurysm of the Abdominal Aorta with Gastric Symptoms Introduction of a Silver Plated Wire into the Sac of the Aneurysm	415
<b>Blood Transfusion</b>	
CAUDIERE and GUERIN VALMALE Maternofetal Blood Reactions	404
MORAWITZ P Blood Transfusion	416
<b>Lymph Vessels and Glands</b>	
MINOT G R and ISAACS R Lymphoblastoma (Malignant Lymphoma) The Age and Sex Incidence the Duration of the Disease and the Effect of Roentgen Ray and Radium Irradiation and Surgery	417

## SURGICAL TECHNIQUE

<b>Operative Surgery and Technique Postoperative Treatment</b>	
LILIENTHAL H and ZIEGLER J M A Study in the Disinfection of the Hands	418
LEWIS D Postoperative Treatment	418
BRYANT J Surgical Convalescence Medical Aspects	418
ALBANO G Hydræmia in Certain Postoperative Syndromes	419
<b>Antiseptic Surgery Treatment of Wounds and Infections</b>	
GENNER V The Influence of Chemical Light Baths on the Bactericidal Processes in the Blood and Serum	419
HORSLEY J S Jr The Intravenous Administration of Gentian Violet and Mercurochrome 220 Soluble in the Treatment of Sepsis	420

## PHYSICO-CHEMICAL METHODS IN SURGERY

<b>Roentgenology</b>	
CHATELLIER H P and DARIAUX A Stereoroentgenography as a Method of Exploring the Cranial Sinuses	366
PEIPER H The Results of the Roentgen Diagnosis of Diseases of the Spine and Spinal Cord with the Use of Iodipin Injections	375
PFÄHLER G E and WIDMANN B P The Relative Value of Various Techniques in the Radiation Treatment of Carcinoma of the Breast as Reflected in the Statistical Analysis of 701 Private Cases with Observations as to the General Value of Radiation	378
MANGES W F Non Opaque Foreign Bodies in the Air Passages X Ray Diagnosis and Localization	380
PANCOAST H K The Roentgen Ray Diagnosis of Lung Abscess	382
SARACENI E ANTONUCCI C and CELIBERTI A X Ray Visualization of the Duodenum by the Introduction of an Opaque Fluid Through the Lumborn Tube	389
MCCOY C C and GRAHAM R S Cholecystography in Operative Cases	390
GRAHAM E A COLE W H COPHER G H and MOORE S Cholecystography The Use of Phenoltetra Iodophthalein	390
HERRICK F C Pyelography in Tumors of the Blank	397
NICHOLS B H Interpretation of the Pyelographic Shadow	409
EISENDRATH D N and ARENS R A Variations in Normal Pyelograms A Clinical Radiological Study	409
GRANT O Shadows in the Urinary Tract from a Practical Urological View	409
MONOT G R and ISAACS R Lymphoblastoma (Malignant Lymphoma) The Age and Sex Incidence the Duration of the Disease and the Effect of Roentgen Ray and Radium Irradiation and Surgery	417
SIEDAMCROTZKY The Roentgen Ray Treatment of Surgical Tuberculosis	423
<b>Radium</b>	
SARGONOV Radium in the Treatment of Tumors of the Nasopharynx	366
PROUST R MALLEY L and COLIEZ R Cancer of the Cervix Treated with Radium at a Distance	399
MÜLLER W The Effect and Risks of Radium Treatment in Benign Gynecological Complaints	401
<b>Miscellaneous</b>	
NEW G B Surgical Diathermy in Laryngology	371
GENNER V The Influence of Chemical Light Baths on the Bactericidal Processes in the Blood and Serum	419
CHIEVITZ O General Light Treatment in Surgical Tuberculosis	423
MALMSTROM V Some Experiences in Connection with Light Treatment in Cases of Surgical Tuberculosis	423

## MISCELLANEOUS

## Clinical Entities--General Physiological Conditions

- SLYE M. Some Misconceptions Regarding the Relation of Heredity to Cancer and Other Diseases. The Incidence and Inheritability of Spontaneous Cancer in Mice--Twenty Third Report 41
- WARREN S. L. and PEARSE H. E. The Repeated Inoculations of Animals with So Called Cancer Organisms 421
- LYNCH K. M. The Pathological Diagnosis of Cancer 41
- BLOODGOOD, J. C. The Prevention, Diagnosis and Treatment of Cancer in Its Earliest Stages 41
- HORSLEY J. S. Modern Tendencies in the Treatment of Cancer 421

## General Bacterial, Protozoan and Parasitic Infections

- CHIEVITZ O. General Light Treatment in Surgical Tuberculosis 423
- MALMSTROM, V. Some Experiences in Connection with Light Treatment in Cases of Surgical Tuberculosis 423
- SIEDAMGROTZKY. The Roentgen Ray Treatment of Surgical Tuberculosis 423
- Surgical Pathology and Diagnosis
- RYLE J. A. Visceral Pain and Referred Pain 395
- LYNCH, K. M. The Pathological Diagnosis of Cancer 421

## BIBLIOGRAPHY

## Surgery of the Head and Neck

Head	424
Eye	424
Ear	425
Nose and Sinuses	425
Mouth	426
Pharynx	426
Neck	426

## Surgery of the Nervous System

Brain and Its Coverings Cranial Nerves	427
Spinal Cord and Its Coverings	428
Peripheral Nerves	428
Sympathetic Nerves	428
Miscellaneous	429

## Surgery of the Chest

Chest Wall and Breast	429
Trachea Lungs and Pleura	429
Heart and Pericardium	430
Esophagus and Mediastinum	430
Miscellaneous	430

## Surgery of the Abdomen

Abdominal Wall and Peritoneum	430
Gastro-Intestinal Tract	431
Liver Gall Bladder Pancreas and Spleen	433
Miscellaneous	434

## Gynecology

Uterus	434
Adnexal and Periuterine Conditions	435
External Genitalia	435
Miscellaneous	436

## Obstetrics

Pregnancy and Its Complications	436
Labor and Its Complications	437
Puerperium and Its Complications	438
Newborn	439
Miscellaneous	439

## Genito Urinary Surgery

Adrenal Kidney and Ureter	439
Bladder Urethra and Penis	440
Genital Organs	440
Miscellaneous	441

## Surgery of the Bones Joints, Muscles Tendons

Conditions of the Bones Joints Muscles Tendons Etc	441
Surgery of the Bones Joints Muscles Tendons Etc	442
Fractures and Dislocations	443

## Surgery of the Blood and Lymph Systems

Blood Vessels	444
Blood Transfusion	444
Lymph Vessels and Glands	444

## Surgical Technique

Operative Surgery and Technique Postoperative Treatment	444
Antiseptic Surgery Treatment of Wounds and Infections	445
Anæsthesia	445

## Physicochemical Methods in Surgery

Roentgenology	445
Radium	445
Miscellaneous	445

## Miscellaneous

Clinical Entities—General Physiological Conditions	445
General Bacterial Mycotic and Protozoan Infections	446
Ductless Glands	446
Surgical Pathology and Diagnosis	446

## AUTHORS

## OF THE ARTICLES ABSTRACTED IN THIS NUMBER

- Abt, I A, 385  
 Adson, A W, 362  
 Albano G, 419  
 Allenbach, 410  
 Antonucci C, 389  
 Arens, R A, 409  
 Aschner B, 398  
 Ascoli M, 388  
 Aysaguer, 412  
 Ballance, Sir C, 361  
 Barbezzer, 372  
 Baum H L, 368  
 Baumgartner R, 376  
 Bazin A T, 390  
 Billings, A E, 378  
 Bloodgood J C, 421  
 Boatman G, 370  
 Boeckel, 410  
 Bordet F, 376  
 Botteselle R, 412  
 Bowers M R, 408  
 Browne, F J, 403  
 Bryant, J, 418  
 Bullard E A, 398  
 Campbell A, 308  
 Capetchn E, 394  
 Case J T, 388  
 Cattaneo, G, 413  
 Caudiere, 404  
 Celiberti A, 389  
 Champlin J, 390  
 Chatellier H P, 366  
 Chievtz O, 413  
 Cole W H, 390  
 Colmez, R, 399  
 Collinson G A, 391  
 Copher G H, 390  
 Courboulès, 394  
 Crile C W, 369  
 D'Agata G, 409  
 Danaux A, 366  
 De Martel, 372  
 De Martel T, 374 395  
 Draper, J W, 390  
 Dukes, C, 390  
 Duval P, 387  
 Essendrath, D N, 409  
 Elman R, 391  
 Ferraciu, D, 398  
 Fifield I R, 397  
 Fitzgibbon G, 403  
 Forssner H, 402  
 Fowweather F S, 391  
 Franck, 410  
 Fuss E M, 401  
 Gatellier, 387  
 Gaudier H, 384  
 Genner V, 419  
 Gibbon, J H, 378  
 Gibson C L, 393  
 Giordano D, 415  
 Graham, A, 368  
 Graham, E A, 390  
 Graham R S, 390  
 Grant O, 409  
 Greene O, 402  
 Gruca A, 362  
 Guénot, 406  
 Guerin Valmale, 404  
 Hale K, 394  
 Halpert B, 389  
 Hammes E M, 373  
 Helmholz H F, 408  
 Hempstead B E, 363  
 Herbst W P, 392  
 Herrick F C, 397  
 Hofbauer J, 403  
 Horsley, J S, 421  
 Horsley J S, Jr, 40  
 Ionescu D, 376  
 Isaacs, R, 417  
 Jenkins G J, 361  
 Jonnesco, T, 376  
 Judd, E S, 392  
 Kern R A, 382  
 Key B W, 363  
 Kjellin G, 402  
 Klopp E J, 378  
 Kolmer J A, 374  
 Ladwig A, 369  
 Lambret O, 386  
 Lampe W, 372  
 Lecene, 386  
 Lecene P, 391  
 Lewis D, 418  
 Lihenthal H, 418  
 Love R J, McN, 397  
 Lund R, 374  
 Lynch K M, 421  
 Magaton O, 362  
 Magill W H, 399  
 Mallet L, 399  
 Malmström, V, 423  
 Mangabeira Albernaz P, 365  
 Manges W F, 378 380  
 McCormick C O, 407  
 McCoy C C, 390  
 McIlroy A L, 402  
 McMaster P D, 391  
 Mensels F, 362  
 Miller C J, 404  
 Miller J L, 392  
 Miligan Sir W, 364  
 Minot G R, 417  
 M Nally W J, 364  
 Möller W, 401  
 Moore S, 390  
 Morawitz, P, 416  
 Moulonguet P, 391  
 Moutier, 387  
 Muller G P, 382 393  
 New G B, 371  
 Nichols B H, 409  
 Noyes I H, 399  
 Nystrom G, 415  
 Pancoast H K, 382  
 Papin, 412  
 Pearse H E, 411  
 Peckham C H, 404  
 Peet M M, 374  
 Perper H, 375  
 Pfahler G E, 378  
 Pheulpin E, 374  
 Pieri G, 408  
 Pisani L, 408  
 Pouzin Malègue, Y, 380  
 Prabram E, 400  
 Proust R, 399  
 Pulford D S, 362  
 Revel, 372  
 Reverchon, 367  
 Rose, E, 385  
 Rout J C, 387  
 Rubritius H, 411  
 Rucker, M P, 405  
 Rusche C F, 410  
 Ryle J A, 395  
 Saraceni F, 389  
 Sargnon, 366  
 Schwarz O, 411  
 Scott S, 361  
 Sears W H, 375  
 Sergeant, E, 376  
 Siedamgrotzky, 43  
 Slye, M, 421  
 Smyth D C, 365  
 Stewart R L, 411  
 St John F B, 386 394  
 Stone, E L, 407  
 Strauss A A, 385  
 Sun K C, 406  
 Sundell C, 402  
 Suzor, 406  
 Tavares A, 462  
 Tengwall E, 413  
 Theobald, G W, 403  
 Thomson Sir St C, 370  
 Tsiros, 367  
 Tucker G, 381 382  
 Tweedie A R, 361  
 Warren S L, 378, 421  
 Westphal U, 405  
 Widmann B P, 378  
 Williams J W, 406  
 Woodburn J J, 370  
 Young H H, 414  
 Yule G W, 407  
 Ziegler J M, 418



## EDITOR'S COMMENT

THE rôle of infection of the gastric wall and perigastric lymphatics in the development of complications after gastro-enterostomy is discussed in two interesting papers appearing recently in the *Bulletin et Mémoires de la Société Nationale de Chirurgie*, one by Duval, Roux, Gatellier and Moutier (p 387) and the other by Lecène (p 386). The former authors believe that a vicious cycle coming on early after operation and gastroduodenal ulcers result from a localized inflammatory process due to extension from the ulcer site in the stomach and that a vicious cycle developing later results from adhesions and bands formed after postoperative infection. They suggest that the absence of renewed ulceration after extensive resection may be due to the removal of the infected area rather than the elimination of the acid secreting portion of the stomach.

Case's description of the roentgenographic findings in ninety cases of diverticulum of the small intestine other than Meckel's diverticulum (p 388) indicates that this condition is not as uncommon as is generally believed and must be constantly borne in mind in the differentiation of gastro intestinal conditions with indefinite or perplexing symptoms. Visualization of the duodenum by the introduction of opaque fluid through an Einhorn tube as suggested by Saraceni, Antonucci and Celiberti (p 389), should be of particular value in the recognition of such diverticula since more than 90 per cent are found in the duodenum.

St. John's presentation of a case of abdominal biliary fistula in which the fistulous tract was successfully dissected free and transplanted into the stomach (p 386) is a striking example of a high surgical achievement. This case is of particular interest in connection with Seulberger and Pollwein's experimental studies on the substitution of rubber tubes for artificial defects in the bile passages reviewed in the October issue of the *ABSTRACT* (p 296).

The papers of Graham (p 368) and Crile (p 369) on the thyroid gland in relation to toxic goiter and the surgical treatment of goiter are

worthy of particular attention because of the authors' very extensive experience with thyroid disease. Ladwig's follow up study of 150 cases of Basedow's disease from the surgical clinic of the University of Leipzig (p 369) affords an interesting comparison of the results of treatment of this condition in American and European clinics.

New's discussion of surgical diathermy in the treatment of benign lesions and new growths in the nose and throat (p 371), and Sargnon's evaluation of the results of radium treatment of tumors of the nasopharynx (p 366) indicate the present day tendencies in the management of these not uncommon conditions.

Kolmer's studies on the treatment of experimentally produced streptococcus and pneumococcus meningitis (p 374) emphasize the value of adequate drainage as compared with the administration of sera and chemical antiseptics. That one treatment consisting of lavage of the pathway from the ventricles to the cisterna magna with from 20 to 40 ccm of Ringer's solution was usually sufficient to produce a cure in experimental animals suggests the possibility of greatly improved results in the treatment of this grave condition.

Manges' description of the X ray signs of non opaque foreign bodies in the air passages and of methods of localizing them (p 380) and the symposium of Kern, Pancoast, Tucker and Muller (p 382) on lung abscess are helpful contributions to the rapidly increasing literature on the pathology, symptoms and surgical treatment of infectious processes in the lung.

Caudière and Guerin Valmale's studies on maternofetal blood reactions (p 404) indicate that transfusion of the mother's blood to the infant without preliminary compatibility tests is not free from danger.

A symposium on the surgery of the breast by Klopp, Billings, Manges and Gibbon (p 378), and another on pyelography by Nichols, Grant, Eisendrath and Arens (p 409) are only two of many interesting and noteworthy reviews in the current issue of the *ABSTRACT*.

# INTERNATIONAL ABSTRACT OF SURGERY

NOVEMBER, 1926

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Jenkins G J Ballance Sir G Scott S Tweedie  
A R. and Others Discussion on Fracture of  
the Base of the Skull and the Ear Nose and  
Throat Surgeon *Proc Roy Soc Med Lond*  
1926 XIX Sect Otol 9

JENKINS calls attention to the fact that in many hospitals the otorhinologist is not asked to make an investigation in cases of suspected fracture of the base of the skull in spite of the fact that such an examination is recognized as advisable. Before the routine examination of the ear and nose is made it is important to know whether there has been any chronic sepsis in these regions.

Bleeding from the nose in serious head injuries is commonly due to fracture of the base of the skull but may be the result of an intrinsic injury of the nose.

When there is destruction of the labyrinth a lesion of the lower neuron of the seventh cranial nerve severe bleeding or a flow of cerebrospinal fluid from a torn tympanic membrane or from a wound of the meatal wall there is little doubt that a fracture of the base of the skull has occurred.

Injury of the seventh cranial nerve is common. It is not unusual for the paresis to increase for two or three days after the accident.

There may be a fracture involving the bony external auditory meatus without rupture of the tympanic membrane or membranous meatus. In such cases the line of fracture may be indicated by a swelling. Sometimes the swollen area is discolored. Occasionally the bleeding is very slight and the break in the wall impossible to find but usually a bony injury will be indicated by the swelling and distortion.

In fracture involving the ear with no bleeding Jenkins applies a 2½ per cent solution of iodine into the meatus and cleans up the pinna. When the bleeding is profuse he merely cleans the pinna. When there is no bleeding or when the hemorrhage

has ceased he attempts to clean the meatus. Syringing of the ear in these cases is not advisable. When there is a chronic suppurative middle ear disease, the risk is greater especially if there has been escape of cerebrospinal fluid. In such cases Jenkins establishes free drainage in the region and sometimes goes through some of the stages of the radical mastoid operation and exposes the dura along the line of fracture.

In cases in which there is no evidence of damage to the dura operative procedures on the bone are contra indicated as an operation may produce injury to the dura by causing movement of the fragments.

BALLANCE states that hemorrhage from the ear comes from the tympanum or from the veins, sinuses or surrounding arteries. He has never observed hemorrhage from the internal carotid coming out of the external auditory meatus except in a case of tuberculous disease of the petrous bone. Hemorrhage from the lateral sinus is rare and likely to be rapidly fatal. Hemorrhage from the middle meningeal artery may be very profuse and demand immediate surgical intervention. In cases of hemorrhage with concussion and loss of consciousness, the best procedure is immediate decompression. In cases of hemorrhage from both ears operation should be performed on both sides.

The treatment of nasal injuries should be based upon the same principles as those observed in the treatment of the ear. Ballance believes it is impossible to render the nose aseptic.

For cases with a history of sepsis Ballance advises surgery as indicated.

In Ballance's cases of fracture through the middle fossa there was total deafness with total facial palsy. Some of the patients recovered from the total deafness, but few recovered from the total facial palsy.

When these fractures are seen early, the main object of the surgeon should be to prevent the occurrence of sepsis by doing a decompression and

to convert a compound fracture into a simple fracture so far as the brain and membranes are concerned

SHIRLEY C LYONS M D

Gruca A and Meisels E Asymmetry of the Mandible from Unilateral Hypertrophy *Ann Surg* 1926 lxxiii 755

The authors report in detail a case of asymmetry of the mandible and review briefly fifteen similar cases reported in the literature. In their own case the asymmetry was due to hypertrophy of the head and neck of the right mandible. The typical unilateral prognathism and the malposition of the teeth develop very slowly. The operative treatment employed most frequently is unilateral resection of the head of the condyloid process. This usually gives a good cosmetic and functional result.

J FRANK DOUGHTY M D

Magaton O A Case of Total Necrosis of the Mandible Due to Acute Infectious Osteomyelitis (Un caso di necrosi totale della mandibola da osteomielite acuta infettiva) *Ann ital di chir* 1926 v 158

Almost all of the cases of total necrosis of the mandible that have been reported to date have been due to phosphorus poisoning. Very few were caused by acute infectious osteomyelitis. A case of the latter type is reported in this article. The patient was a girl 10 years old who had a negative personal and family history. On October 14, 1921, she began to have pain in the third lower molar on the left side. This soon became so intense that it prevented eating and sleeping. The jaw on the left side became red and swollen. The swelling extended first to the suprahyoid region of the left side then to that on the opposite side and finally to the right cheek. Fetid pus was discharged from the mouth.

On October 21 the patient was admitted to the hospital with a temperature of 38.8 degrees C and suffering with headache and intense pain. The pain was felt throughout the mandible but was particularly intense at the angle and along the ascending ramus on the left side. The patient's face and neck were enormously swollen and there was marked fluctuation in the suprahyoid region.

An incision was made at the point of greatest fluctuation and the pus drained. The diagnosis based on exploration was acute suppurative osteo-periostitis and probably also osteomyelitis of the entire mandible.

Soon all of the teeth became brown lost their lustre and fell out. A roentgenogram showed many zones of rarefaction of the mandible and at the periphery a zone of increased density due to the new formation of bone. Another roentgenogram made after forty days showed diffuse necrosis of the mandible and the formation by the periosteum of the shell having the shape of the necrosed mandible. While the fistula from the incision had decreased there were ulcers of the gums through which pus and fragments of bone were discharged.

On March 21, 1922, a large movable sequestrum constituting the entire body of the mandible was removed. On April 24, two other sequestra which represented the two ascending rami of the jaw were removed. The suppuration then immediately stopped and the fistula closed.

The patient left the hospital with her cheeks and suprahyoid region still swollen and with limitation of the movement of the temporomandibular joint. The newly formed mandible was abnormally large, the body was well defined but the ascending rami were still a little hazy. The bone was less opaque than the other bones but was uniform in density. On May 17, 1924 the newly formed bone was greatly reduced in size and normal in outline both the body and the ascending rami were completely developed. All movements of the joint were normal and the patient had no difficulty in eating. She was then sent to a dentist for a set of teeth. The cosmetic and functional results were excellent.

AUDREY G MORGAN M D

Pulford D S and Adson A W Surgical Removal and Pathological Study of a Massive Squamous Cell Epithelioma Associated with an Angioma of the Scalp *Surg Gynec & Obst* 1926 xlii 846

In cases of extensive superficial vascular lesions surgical shock can be decreased by the use of local anesthetics. In the removal of superficial angioma bleeding can be prevented by the use of the Heidenhain suture.

The cautery knife may be of some aid in controlling capillary oozing and in causing lymphatic block during the removal of the tumor.

Epithelization can be obtained over denuded bone by removing the outer table and subsequently treating the granulating area with paraffin.

Angiomatous tumors may be associated with squamous-cell epitheliomata as the result of progressive changes in the overlying hyperplastic epithelium. In such cases the angioma may be considered the indirect cause of the epithelioma.

Doubtful tumors should be sectioned for biopsy. If malignant they should be graded before operative procedures are completed or the prognosis is stated.

The authors report a case of malignant squamous cell epithelioma arising from the epithelium overlying a benign angioma. Although approximately one half of the tumor was angiomatous the malignant growth was not an angio endothelioma as might be supposed but an epithelioma arising from the epidermal elements overlying the vascular growth.

Tavares A A Cavernous Hæmangioma of the Upper Lip (Hémangiome caverneux de la lèvre supérieure) *Ann d'anat path* 1926 lxi 147

The case of cavernous hæmangioma reported in this article was that of a woman 40 years of age. The tumor was attached to the upper lip by a short pedicle which occupied a large part of the free border of the lip. It was 8 cm long 7 cm broad at its broadest point, and 21 cm in diameter. It hung



FIG 1



FIG 2



FIG 3

Figs 1 and 2 Pedicled implantation of the hemangioma Fig 3 Result after removal of tumor

4.5 cm below the lower level of the jaw. From in front it was approximately heart shaped, but when it was lifted up so that its posterior surface was brought to view it somewhat resembled a kidney, the line of its implantation on the lip corresponding to the hilus. The skin over it was smooth and violet colored. The tumor was painless and soft. At its base and periphery it felt pasty and lobulated. In the center it was harder. On pressure it became paler but could not be reduced.

No other abnormalities were found. The patient was slightly emaciated but had a good appetite. She was in the fifth month of pregnancy. She reported that about twenty-two years ago, when she was splitting wood, a chip struck her upper lip. Two weeks later the lip began to swell and a tumor developed. This was extirpated but reappeared after two years. It had always increased during pregnancy and had decreased again after delivery. During the last few months it had grown rapidly. The patient's health had always been good.

A clamp was applied on each side of the pedicle and the tumor extirpated under novocain-adrenalin anesthesia. After suturing of the skin and mucous membrane a collodion dressing was applied. Uneventful recovery resulted.

On histological examination the neoplasm was found to be a cavernous hemangioma with foci of purulent inflammation and advanced endarteritis and mesarteritis. The fibers of the orbicularis muscle showed marked degeneration.

Angiomata are regarded as congenital abnormalities due to a disturbance of the embryological development of the branchial arches. They are found chiefly at the points where the fetal clefts close. At these points there may be defects such as hare lip, or hyperplasias such as angiomata, or both. Angiomata may remain latent for years and then develop without any apparent cause or after trauma.

AUDREY G. MORCAN, M.D.

## EYE

Key B. W. The Influence of Protein Therapy on the Experimental Staphylococcal Infection of the Rabbit's Cornea. *Am. J. Ophth.*, 1926, 3: 318, 351.

Key states that the best form of foreign protein available for administration to man is antidiphtheria serum. The dosage of other preparations such as milk, normal horse serum, aolin, etc., and the reaction produced by them are uncertain. The dosage of the serum is more definite and its anaphylactic effects are better understood.

A concentrated serum is less likely to cause serum sickness than whole serum because a smaller quantity of the former is injected. The history of previous anaphylactic conditions such as diphtheria, status lymphaticus, asthma, or hay fever like attacks in persons proved susceptible in a stable and horse environment are well established as probably contra-indications to serum injections.

Key has not observed serious anaphylactic effects in any of the 170 cases treated to date. The doses have varied from 1,000 to 5,000 units.

In the first six experiments performed by the author with regard to the influence of protein therapy on staphylococcal infection of the rabbit's cornea an unmeasured dose of staphylococci was used for the inoculation, but because of the very violent corneal reaction produced by the too concentrated emulsion of the micro organism, nothing as to dosage or differences in effect could be determined.

In the next thirteen experiments it was recognized that if the minimal dilution of staphylococci producing active ulceration of the cornea could be determined, more accurate observations would be possible. The determination of the virulence of the staphylococci for the corneal substance was attempted by first growing the micro organism in the eye of an animal. However, this calculation was

upset by the varying virulence of the different strains of staphylococci isolated from different parts of the body

In the last seven experiments a more accurate method of determining the virulence of the bacteria was devised the strains used being passed through the eye of three successive animals

From his experiments Key draw the following conclusions

1 Such an investigation as this is dependent for its accuracy primarily upon the method of inoculation the determination of a fixed virus through passage and the suitable dilution of this virus

2 The method of injection the size of the dose and the relative value of different forms of protein should be worked out with some degree of certainty from the outline of procedure finally demonstrated in these experiments

3 These experiments demonstrate that very interesting and important question of virulence of different strains of staphylococci for corneal substance as evidenced by the unmistakably greater virulence of the staphylococci cultivated from the eye as compared with those cultivated from the throat Whether this is entirely a specific effect or a mere variation in ordinary virulence remains to be proved

4 In almost every experiment in which any difference could be noted the animal which received the protein injection showed the least corneal reaction to the infecting micro organism However none of the experiments showed any important difference between the effect upon the infection of antiphtheria serum concentrated horse serum and typhoid vaccine Sterile milk which was tried in twelve rabbits showed no effect whatever the corneal lesion being similar in every way to the corneal lesions in the control animals

L L McCoy M D

## EAR

Milligan Sir W Hæmorrhagic Types of Ear Disease Occurring During Epidemics of Influenza *Proc Roy Soc Med Lond* 1926 XIX Sect Otol 1

The toxæmia produced by the influenza bacillus in the blood induces a marked vasomotor paresis upsets the balance of the heat center and as a rule produces intense congestion and a high temperature

The author believes that the very severe headache is the result of an acute and rapid congestion of the pia arachnoid membranes with a concomitant increase in the cerebrospinal fluid and a consequent rise in the intracranial pressure Lumbar puncture gives prompt relief from the headache and relieves the varying degrees of serous meningitis It also materially checks the aberrations of the heat center since nothing predisposes more to high temperature than sudden and fluctuating increases in the intracranial tension

In the external auditory meatus the occurrence of an otitis hæmorrhagica is pathognomonic In no other condition do we find the peculiar blood charged bullæ present in influenza These bullæ are usually situated on the postero inferior meatal wall close to the annulus tympanicus or on the surface of the membrana tympani itself

In true otitis media hæmorrhagica the drum head is œdematous and fiery red occasionally shows bullæ of a dark bluish color on its posterior segment and at times pulsates as a whole The condition is invariably associated with intense suffering The congestion is much more acute and painful than that present in the usual types of middle ear catarrh and its destructive effects so far as the contents of the middle ear are concerned, are much more serious

Extension to the mastoid antrum is quite common With the exception of diabetic mastoiditis there is no inflammatory affection which produces such rapid destruction of bone as influenzal mastoiditis

The author is convinced that in many of these cases with objective signs of severe congestion there is at the same time an evanescent pia arachnitis He urges removal of the focus of infection and lumbar puncture The operation of choice is the Schwartze operation

Nerve deafness may often be attributed definitely and specifically to an attack of influenza The pathology present is undoubtedly a hæmorrhagic effusion into the cochlea with resulting destruction of certain portions of the end-organ and toxic infection of the auditory nerve itself

It is of the utmost importance to recognize the symptoms of an early serosanguinous influenzal labyrinthitis and to treat it vigorously by local depletion lumbar puncture and the repeated subcutaneous injection of pilocarpine in order to promote absorption and thus relieve the increased intralabyrinthine tension so conducive to the passage of toxins through the point of least resistance of the auditory tract A R HOLLENDER M D

M Nally W J Experiments on the Saccus Endolymphaticus in the Rabbit *J Laryngol & Otol* 1926 XL 349

In three series of experiments on rabbits the author studied the effect of incision of the median wall of the saccus endolymphaticus the application of pressure over it and cauterization None of these procedures caused much disturbance of the vestibular mechanism The most constant result was a diminution of tonus of the homolateral limbs This sign appeared after several hours whereas rupture of the round window is followed by a diminution of tonus immediately It was most constant following incision of the saccus In the other experiments with a diminution of tonus it was impossible to say that the saccus had not been opened

The only other sign suggesting labyrinthine disturbance was a horizontal deviation of the eyes to the side of the saccus operated upon The author

concludes that the saccus is probably not directly concerned with the diminution of tonus which appears immediately after rupture of the round window  
MANFORD R. WALTZ M.D.

**Hempstead B. E. Six Cases of Definite Mastoiditis in Which the Middle Ear Was Definitely Not Affected** *Ann Otol, Rhinol & Laryngol*, 1926, xxv 517

Cases of mastoiditis without apparent involvement of the middle ear are rare as compared with cases in which the middle ear is obviously affected.

Infection in cases of mastoiditis usually comes from the nasopharynx by way of the eustachian tube. If the aditus ad antrum is small, infected material will soon be sealed off; no means of drainage being left for the infected cells whereas the infected material in the middle ear may drain through the eustachian tube. Mastoiditis without apparent involvement of the middle ear should not be confused with latent otitis media; in the latter there is deafness and sometimes pain but no spontaneous discharge of pus. However, paracentesis is always followed by a discharge of pus.

Apparently fifty-eight cases of mastoiditis without evident involvement of the middle ear have been reported in the literature, but the descriptions are brief and the data therefore uncertain and inconclusive. The author reports six cases from the Mayo Clinic. While the study of these cases does not permit definite conclusions, it indicates the existence of an antecedent otitis media without symptoms. The roentgen ray examination is important. Paracentesis is always negative. Predominance of the streptococcus mucosus is a danger sign in this type of infection, and when this organism is found in cases of acute otitis media with the drainage of pus, the otologist should be on guard.

**Smyth D. C. A Skin Periosteal Flap for the Radical Mastoid** *Ann Otol, Rhinol & Laryngol*, 1926 xxv 442

The object of plastic operations on the external auditory canal after complete exenteration of the mastoid is to prevent a stricture of the external meatus and to utilize the posterior wall of the meatus for partial covering of the surface of the wound in the bone thereby adding another starting point for the epidermization of the uncovered granulating bony surface. As the posterior canal skin is usually so traumatized after a radical mastoid operation that the Kærner flap is practically useless, the author endeavors to improve the skin flap by implanting deep in the cavity a flap of live epithelium with a blood supply through its attached periosteum.

The canal having been cleaned with iodine and alcohol an incision is made in the external auditory canal down through the periosteum along the superior canal wall to the promontory and along the inferior canal wall. The canal is then temporarily packed with gauze, the regular mastoid incision is made down to the periosteum but not through it,

and the subcutaneous tissues are dissected forward so that the posterior cartilaginous canal is brought into view. At the juncture of the cartilaginous and bony canal an incision is carried through to meet the original incisions. From these intersections incisions are carried backward through the periosteum over the mastoid to the edge of the posterior regular mastoid incision. With a submucous elevator, the periosteum of the mastoid over the mastoid is undermined a small buttonhole opening is made in the periosteum, and the periosteum is lifted off. The whole flap is then retracted backward.

When this technique is used, the flap is posterior to the field and is therefore not subject to trauma. On completion of the operation the cartilaginous wall is split through the concha and catgut sutures run from its subcutaneous tissue to the posterior lip of the mastoid wound. These sutures hold the canal widely open. A skin graft is placed in the middle ear and the cavity filled with sterile vaseline. Excessive granulations are removed by a Greenwald punch.

The author has never observed any sloughing of the periosteal flap. The advantages of the technique described are that the flap is prepared at the beginning of the operation and placed out of the way, there is a dry unobstructed operative field, the flap is formed of absolutely untraumatized tissues, the periosteum helps to diminish the size of the bowl, a skin graft is easily placed with accuracy in the middle ear and the time of operation is shortened.

The article contains case reports and illustrations.

GEORGE R. McAULIFF, M.D.

## NOSE AND SINUSES

**Mangabeira Albarnaz P. The Pathogenesis of Polyps of the Septum. The Polyp of Leishmaniasis** (Contribution à la pathogénie des polypes du septum le polype de la leishmaniose) *Arch internat de laryngol* 1926 xxii 139

This article does not deal with mucous polyps, the existence of which on the septum has been denied by some rhinologists, but discusses the hard, almost sessile, fibrous polyps which may be found implanted on the vascular area of the septum in almost all granulomatous infections, tuberculosis, syphilis, rhinoscleroma, leprosy, and some times in chronic glanders.

The author reports three cases in which they were associated with leishmaniasis. One patient was a 12 year old boy, another a man of 31 years, and another a woman of 34 years. The tumors were smooth and irregularly round and located on the septum between the tubercle and the inner border of the nostril. They were hard and fibrous, pale rose in color, painless, and sessile. They did not bleed but epistaxis sometimes occurred when the base was explored. They did not cause pruritus or sensations of heat or cold. The author attributes them to an energetic local defense reaction and attenuation of the virus.

Tartar emetic is as specific for leishmaniasis as novarsenbenzol is for syphilis. Often the ulcers heal after from four to eight intravenous injections. This does not mean that the disease is cured but the patients often stop the treatment if they are not under control. Sometimes a large number of injections is necessary to effect a cure. In very severe cases as many as 150 have been given.

When the treatment is insufficient tartar resistance develops and it is in such cases that the polyps are formed. The author never saw any cases of polyp while he was on the staff of the Otorhinolaryngological Clinic at Bahia in which the treatments are followed up energetically. The three cases he reports he observed in a country practice and were cases in which the treatment had not been thorough. **AUDREY G. MORGAN M.D.**

**Sargnon. Radium in the Treatment of Tumors of the Nasopharynx.** (*La radium thérapie dans le traitement des tumeurs du naso-pharynx*) *Arch internat de laryngol* 1926 xxxii 38

The author classifies tumors of the nasopharynx into two groups, the diffuse and the fibromatous. Radium irradiation has not proved successful in the treatment of diffuse malignant tumors but in cases of true fibroma and malignant tumors with a fibrous appearance it has given very good results. In the latter the author has abandoned surgical treatment entirely in favor of radium irradiation because at operation there is apt to be very severe hemorrhage which sometimes necessitates ligation of the external carotid, total removal of the tumor is often extremely difficult, the tampon which is necessary often causes ear disturbances and sometimes mastoiditis and there is danger of secondary hemorrhage and recurrence. He uses radium without any preliminary operation. As he has had only tubes and needles available he has been unable to employ emanations. At first he introduced needles by either the nasal or the buccal route but he found that those placed by the buccal route easily became displaced so that they burned the surrounding tissues and unless they were not very firmly fastened there was danger that they might be swallowed. He therefore now uses tubes entirely.

After cocaine and adrenalinizing the region he passes a fine sound through the nose and mouth and attaches a thread to the mouth end of it to serve as a conducting thread in each nostril. He then puts two tubes in tandem in a rubber sheath (preferably black) to exclude secondary irradiation and sheaths them with gold if possible for better filtration. He then pulls them up to the region of the tumor so that one lies in the nasopharynx and the other in the posterior part of the nose. This generally causes some hemorrhage but the bleeding can be stopped by an anterior tampon. The tampon may be removed the next day. The tubes are generally left in for forty-eight hours. One application is enough. He generally uses tubes of 100 or 50 microcuries. As a rule no hemorrhage occurs when

the tubes are extracted as the radium has a hæmostatic action.

In one case of epithelioma of the fibromatous type he applied a collar of twenty tubes around the lower part of the face, but its action was too intense, causing a double perforation of the vault of the palate. An external collar is not necessary in such cases. When there is enlargement of the glands which is rare in tumors of the fibromatous type the glands should be removed surgically as the radium will have little effect upon them. In one case the author applied an external cervical collar around the region of an excised gland combining this with the internal use of radium tubes. The result was good but the end results are not yet known.

The treatment described causes cessation of the hemorrhage and slow but progressive retrogression of the tumor. Generally several months are required for the complete disappearance of the neoplasm. The action of radium may continue for three months. Its unfavorable effects if any appear late. A possible unfavorable sequela is necrosis of the vault of the palate. In some cases the posterior part of the vomer is eliminated, this giving rise to a more or less faecal suppuration. No other complications have been observed.

The author has previously reported twelve cases. One of them was a case of fibroid tumor in a young girl. This tumor disappeared and at the end of four years had not recurred. Three were cases of hemorrhagic fibroma in boys at puberty. One of these boys has been cured for two years but has a large perforation of the vault of the palate. Another who was treated during the war was benefited but has not been seen since. Of five patients treated for sarcoma of the fibromatous type, one who was apparently cured has not been seen since another was benefited, two others were apparently cured and one has remained cured since 1913. Of three cases of atypical epithelial tumor with a fibrous appearance all were cured and one has remained cured for two years. The details of five recent unreported cases are given. All were cured but the late results are not yet known.

**AUDREY G. MORGAN M.D.**

**Chatellier H. P. and Dariaux A. Stereoroentgenography as a Method of Exploring the Cranial Sinuses.** (*La stéréoradiographie moyen d'exploration des sinus du crâne*) *Arch internat de laryngol* 1926 xxxii 9

The head is the most difficult part of the skeleton to examine roentgenologically because of its thickness and complexity. The multitude of planes of different depths superimposed on the single plane of the film produce a confusing picture in which nothing can be distinguished clearly. The stereoroentgenogram detaches these planes from each other and brings them out with a relief which gives the observer the impression that he is looking through a cranium of glass. The different planes are shown in their proper relation to each other.

It is very easy to take the pictures. The head is firmly fixed in position and the normal ray directed on the center of the region to be photographed, for the postero antero incidence, for example, it is directed on the midline 2 cm below the external occipital protuberance. The tube is fixed at the desired height, from 75 to 80 cm above the film case. For the first photograph it is moved from 3/4 to 4 cm to the right and then back to the center. For the second it is moved the same distance to the left. The two films are superimposed by means of a stereoscope.

Any operation on the posterior sinuses should be preceded by a roentgen examination in order that the operator may have an exact knowledge of the anatomy of the region. As an examination by ordinary roentgenography requires at least four plates—one from the base, one in profile, an intrabuccal plate, and an oblique plate—the necessity of taking two films for the stereoscopic picture is not a serious disadvantage.

Ordinarily the maxillary sinuses can be examined quite well by the usual methods but the authors have found on stereoscopic roentgenograms taken from in front that an opacity which appeared in an ordinary roentgenogram to be in the sinus was in reality much further back on the lateral mass of the atlas. In another case an apparent sinus shadow was found to be caused by a large dental cyst the convexity of which projected far into the sinus.

The stereoroentgenogram has decided advantages in the examination of the frontal sinuses. In an ordinary roentgenogram it is difficult if not impossible, to see the interorbital part of the sinus. As the frontal sinuses, the ethmoid cells and the sphenoid sinuses are on almost the same horizontal plane, their shadows are superimposed. Sometimes the clinoid processes and the tip of the petrous pyramid may confuse the shadow if the head is not held absolutely straight, and the shadow of the interfrontal septum is easily confused with the shadows of other vertical lines of bone. It is occasionally impossible to distinguish the upper part of it from the frontal crest and the lower part of it from the top of the nasal septum, the crista galli, and the intersphenoid septum. A vertex chin incidence is better even in ordinary roentgenography than an anteroposterior incidence but even in the former the floor of the sinus is presented obliquely to the rays, this resulting in distortion and lack of precision. The only method of examination that overcomes these difficulties consists in taking two stereoroentgenograms, one anteroposterior and one vertex chin.

Stereoroentgenography is of great value also in the study of the ethmoid and sphenoid sinuses. It is the only method which brings them out from each other and shows the succeeding planes in their proper perspective. While the stereoroentgenogram will not reveal the individual ethmoid cells, one behind the other, it will clearly demonstrate lesions of the ethmoid cells as distinct from

lesions of the frontal or sphenoid sinuses. In the examination of the sphenoid sinuses the films may be reversed and looked at from behind. There will then be nothing in front of the sinus but the plate of the occipital bone and the basilar process, the pictures of which are very simple and not at all confusing. The stereoroentgenographic method is to be recommended particularly for the examination of the sinuses.

AUDREY G MORGAN M D

**Reverchon and Tsuros. An Ethmoidal Mucocele with Extensive Invasion of the Orbit (Mucocele fronto ethmoidale avec large envahissement de l'orbite). Arch internat de laryngol 19 6 xxvii 165**

Ethmoidal mucocele develops slowly and generally pushes the contents of the orbit outward without injuring them. It is unusual for it to reach such a size that the eyeball is injured and vision is impaired.

The case reported in this article was that of a man 21 years old. Two years before the patient consulted the authors he felt a small tumor at the upper inner angle of the left orbit. This grew slowly for a while, but for about eight months it had caused progressive impairment of vision. Examination revealed lines and dots of opacity in the crystalline lens. There was no pain.

The lachrymal bone was pushed forward by a soft tumor which seemed to originate in the floor of the orbit, descend into the frontonasal canal, and extend backward and involve the lateral wall of the orbit. The tumor projecting into the orbit from the fronto-orbital angle was the size of a large nut. X ray examination showed opacity of all of the left fronto-orbital region which partially masked the details of its structure, but the left frontal sinus could be seen. The latter appeared distended. It was impossible to say whether the condition was an ethmoidal mucocele or a malignant tumor of the ethmoid.

At operation an incision was made over the frontal sinus and around the upper and inner border of the orbit. In the floor of the frontal sinus there was a large breach from which flowed a mucopurulent fluid. The fluid was aspirated with a pipette to prevent soiling of the field of operation. No bacteria could be found in it. The walls of the sinus showed no trace of osteitis but were covered with a mucous membrane thicker than that of a normal sinus. The whole sac lining the sinus was shelled out like a paracyst of the upper maxillary. There were quite firm adhesions along the floor and around the breach in the bone. The eyeball was restored to its normal position and the wound sutured in two layers.

The eye regained its normal movements very quickly. A month after the operation the signs of congestion had disappeared but the opacities of the lens remained. Vision improved but remained less than 2/10. Histological examination of the membrane showed a connective tissue layer lined with ciliated epithelium.



In this case there was a slow period of growth of the cyst followed by rapid growth. It seems that the infection caused the latent cystic tumor to enlarge, rupture the bone and invade the orbit. Trophic disturbances of the anterior segment of the eye, primarily anesthesia of the cornea, are common in phlegmons of the eyeball but the authors believe they are unusual in cases like such as this in which the eyeball is only compressed and not diseased. Total removal of the membrane is the chief indication in the treatment of these cysts as well as of paradental cysts. In the case reported it did not seem necessary to establish nasal drainage. Infected mucocle is to be considered a cyst analogous to a paradental cyst rather than a sinusitis.

AUDREY G. MORGAN M.D.

### MOUTH

**Campbell A.** The Closure of Congenital Clefts of the Hard Palate. *Brit J Surg* 1926 viii 715

Campbell has devised a method of closing defects of the hard palate by using the nasal septum. The tissue of the nasal septum is very vascular and heals well under adverse conditions.

The first step in the operation, which consists in the formation of the palatal flap, involves the reflection of a flap from the buccal surface of the palate on the same side as the cleft with its base on the lateral margin of the cleft. The width of this flap is approximately a little greater than that of the cleft.

The incision is made parallel with the cleft margin and goes down to the bone. It extends as far as the posterior border of the hard palate and the ends of the incision are then joined to the margin of the cleft. The mucoperiosteum is reflected medially as far as the margin of the gap in the bone and the hinged flap thus formed is turned upward so that it comes to lie with its medial edge in apposition with the lower edge of the septum and its raw surface toward the mouth.

The second step consists in the formation of the nasal flap. This is done by measuring the distance between the lower border of the septum and the unreflected or lateral edge of the palatal incision. If for example this is 1 cm posteriorly a mark is placed on the soft and hard palates; a mark is placed on the nasal septum about 2.5 cm vertically above its lower border. If the gap narrows anteriorly to 0.5 cm, a mark is made above on the septum 1.2 cm from the lower border. A line of incision is thus outlined. Then with a rectangular knife a horizontal incision is made from behind forward along the line cutting through the mucoperichondrium as far as but not into the cartilage of the septum. The anterior and posterior ends of this incision are then joined to the lower border of the septum. With an elevator the mucoperichondrium is turned down so that it hangs like a curtain in the mouth. This nasal flap has its base at the medial margin of the cleft, its raw surface toward the nose and its lateral

edge in approximation with the lateral edge of the palatal incision.

In the third step one or two sutures are introduced to unite the upper and lower flaps at the base of the septal flap if necessary and the lateral edge of the nasal flap is sutured to the line of the palatal incision with three or four sutures. This completes the operation.

JAMES C. BRASWELL M.D.

### PHARYNX

**Baum H. L.** The Radical Cure of Peritonsillar Abscess. *Ann Otol Rhinol & Laryngol* 1926 xxxv 429

The treatment of peritonsillar abscess is disappointing especially in the early stage. Because of the intense suffering and the danger of serious and often fatal complications it is exceedingly desirable to give relief as early as possible rather than to wait until incision and evacuation are considered feasible.

The author has obtained most satisfactory results from tonsillectomy. In what he calls the second stage of the condition the gland is pushed toward the midline but as yet there is no supratonsillar bulging. As the ordinary methods of approach will not evacuate the pus at this time tonsillectomy is most applicable. Baum performs it under ether anesthesia and removes the normal tonsil at the same time.

This method evacuates the pus and provides massive drainage of the infected area with immediate relief.

GEORGE R. McALLIFF M.D.

### NECK

**Graham A.** The Thyroid Gland in Relation to Toxic Goiter. *Radiology* 1926 vi 377

Graham discusses the effect upon the thyroid of surgical removal, X-ray and radium irradiation and iodine treatment.

Surgeons are confronted with the question of how much gland to remove. If too little is removed the clinical results are not satisfactory, whereas if too much is removed myxedema may develop. Prior to the administration of iodine as a preliminary to operation it was the rule to remove from three-fourths to seven-eighths of the gland. The removal of so much tissue from patients treated with iodine may increase the postoperative incidence of abnormally low basal metabolic rates with or without clinical manifestations of myxedema. Graham believes there is a definite use for iodine after operation to prevent regeneration hyperplasia in glands that had not undergone complete involution before operation.

With regard to the effect upon the thyroid of roentgen ray and radium irradiation the author states that our knowledge is still too incomplete to warrant definite conclusions. Clinical and experimental evidence indicates that irradiation produces adhesions between the thyroid and the surrounding

structures, fibrosis of varying degree, and a decrease in the vascularity and volume of the thyroid. It is doubtful, however, whether on an anatomical basis, these changes can be distinguished from changes of a similar nature and equal degree in thyroids that have not been irradiated. With regard to the effects of irradiation upon the function of the thyroid very little is known.

The implantation of radium produces localized necrosis followed by fibrosis, changes quite similar to those produced by the injection of boiling water, alcohol, quinine and urea, iodine, carbolic acid, etc.

Iodine is being extensively used as a therapeutic agent without proper appreciation of its indications and contra indications. The indications and contra indications are derived from the state of the thyroid itself.

The clinical response of patients with typical exophthalmic goiter and typical toxic adenoma to the administration of iodine is identical, varying only in degree, and depends upon the patient's age and condition, the duration and intensity of the disease, the state of the thyroid at the time, the quantity of iodine given, and whether or not the patient took iodine previously. STANLEY J. SEEGER, M.D.

**Crile, G. W.** The Surgical Treatment of Goiter. *Radiology* 1926 vi 365.

Crile says that as there has been so much uncertainty regarding the cause and specific nature of the syndrome designated as "hyperthyroidism," it is not surprising that various methods of treatment have been suggested for it. However, of the definite methods which have been proposed, the only ones which merit serious consideration are the rest cure, radiation and surgery.

Ever since the discovery of the therapeutic value of the X ray, the possibility of applying the ray to the treatment of hyperthyroidism has been under discussion.

Means and Aub claim that in cases of equal toxicity the chance for the cure of exophthalmic goiter is as good in roentgen ray treatment as in surgery, and that, this being true, the former method is preferable to the latter as it is associated with less danger of a fatal outcome, it produces no scar, it does not interfere with the patient's occupation, it is painless, and it causes the patient very little inconvenience.

Against these claims, Crile states that under the plan of management employed by him almost no case of hyperthyroidism is too severe for surgical treatment.

In a series of 748 thyroidectomies for hyperthyroidism performed during a period of six months beginning June 1, 1925, the mortality was only 0.82 per cent and among 398 ligations it was only 0.76 per cent. When the site of the incision is carefully chosen, the resultant scar is so slight that within a few weeks it is practically invisible. The one or two brief stays in the hospital necessitated by surgical treatment do not inconvenience the patient more than the repeated visits to the hospital necessary for

treatment with the X ray. In reply to the argument that X ray treatment does not interfere with the patient's occupation, Crile says that in acute hyperthyroidism it should be interfered with, whatever treatment is used. He calls attention also to the fact that operation is the only procedure by which the amount of diminution of the gland can be accurately controlled. The argument of the radiologist that surgery can be employed later if the X ray does not effect a cure is not a good one because radiation increases the difficulties of operation and during the period that the X ray is being tried the disease causes additional damage.

In conclusion Crile states that the success of radiation as well as of surgery depends not only upon the method employed but also upon the management of the patient over a period of time, the length of which depends upon the type of the disease. In hyperthyroidism the management of the patient over a prolonged period is of particular importance; the operation constitutes only one stage in the treatment. STANLEY J. SEEGER, M.D.

**Ladwig, A.** Follow Up of Patients Operated upon for Basedow's Disease (Nachuntersuchungen an Basedow-operierten). *Arch f. klin. Chir.* 1925 cxxvii 367.

This article is a report on 150 of 190 cases of Basedow's disease which were operated upon in the period from 1912 to 1924. The author differentiates between the classical Basedow's disease (with the Merseburg triad, tachycardia, goiter and exophthalmos) and thyrotoxicosis. The latter condition resembles the classical Basedow's disease clinically, but lacks the most pathognomonic sign of the latter, namely exophthalmos.

The treatment of choice is bilateral wedge resection preceded by ligation of all four large arteries or if the remaining portion of the gland will not be functionally sufficient, of only three. In especially severe cases with marked involvement of the heart, the operation should be performed in two stages: first ligation of both superior thyroid arteries or of only one, and then after improvement of the general condition—usually one or two months later—bilateral resection.

In the ward cases of Basedow's disease which are reviewed the postoperative mortality was 6.5 per cent while in the ward cases of thyrotoxicosis it was 11.1 per cent. In cases seen by the author in private practice, the corresponding percentages were 2 and 6.6.

A satisfactory explanation for the true Basedow death has not yet been found. The typical picture is that of an increased pulse rate, increased anxiety, and frequently a considerable rise in the temperature. This was sometimes observed even after ligation operations.

The pre-operative care is of the greatest importance for a favorable result. In the author's cases the patient is given bed rest for eight days. The operation is performed under scopolamine morphine

anæsthesia supplemented with local novocain or tutocaine anæsthesia

Good results, by which is meant freedom from severe nervous disturbance and the return of the ability to work (complete disappearance of all symptoms was rarely observed) were obtained in seventy two (69.2 per cent) of 104 cases of the classical Basedow's disease and in twenty four (68.5 per cent) of thirty five cases of thyrotoxicosis. Half of these were permanent results. Cases in which the neuropathic element is particularly dominant are more difficult to influence than the others even by operation.

The author attaches great value to postoperative treatment by physical and mental rest, hydrotherapy, climatic influences and psychotherapy. Psychotherapy is particularly important.

The blood picture is not influenced by the operation. In the majority of cases, lymphocytosis, eosinophilia, etc. were found after operation as well as before it and were as common in the cases in which good results were obtained as in those with poor results. The blood picture in Basedow's disease is a sign of constitutional degeneration which is not affected by the operation.

SMOLY (Z)

**Boattini G. Thyroid Grafts (Linnesto tiroideo).**  
*Arch ital di Chir* 1926 2: 1

The author performed several series of experiments in grafting thyroid tissue. He grafted homoplastic and autoplastic thyroid into rabbits which had been partially thyroidectomized and also into those which had been subjected to complete thyroidectomy. He found that the grafts did not take in the animals that had been partially thyroidectomized but did take in those in which the whole thyroid had been removed.

It seems that the graft requires a functional stimulus in order to survive and if the body is already sufficiently supplied with thyroid hormone and no functional demand is made on the graft it is absorbed. However, histological examination of the grafts in the cases of total thyroidectomy after periods of as long as one hundred twenty five days showed the persistence of normal thyroid tissue with signs of hyperfunction which is indicated not so much by a large amount of colloid as by its fluid character. The colloid is less viscid and does not strain so intensely as colloid in a gland that is not functioning excessively and the cells are higher and often cylindrical.

The thyroid tissue to be grafted should be fresh and will take better if it is divided into small pieces. The best bed for it is the subcutaneous tissue of the abdominal wall as this has a copious blood supply and exerts no toxic action on the graft. The author believes that homoplastic thyroid grafts are capable of taking and functioning for an indefinite time, and that further experimentation along this line will be of great value in treatment.

AUDREY G MORGAN M D

**Thomson Sir St C. Tuberculosis of the Larynx. Treatment with the Galvanocautery. Indications, Results, Technique.** *Lancet* 1926 ccx, 1084

The author never gives galvanocautery treatment in a case of laryngeal tuberculosis until sufficient time has elapsed to show the progress that will be made under sanatorium care and voice rest.

The results of galvanocautery treatment are most favorable when the disease is situated on the vocal cords, the vocal processes, and the interarytenoid region and is in a quiescent state. This treatment is indicated also when the tuberculous deposit is limited to a ventricular band or arypiglottic fold and is of an indolent type. When the epiglottis is invaded it may be employed only when the condition is chronic or of the lupoid form.

It is contra indicated in acute cases with a turban shaped epiglottis, and particularly during the evolutionary period. It is dangerous if the arytenoids are acutely invaded with a massive deposit or show a pseudo ordema and when the mobility of the cord is impaired and there is pain.

The patient's general condition must always be taken into consideration. The operation should not be undertaken in the case of a patient whose general condition is rapidly deteriorating.

Of 3,542 laryngeal cases seen in a sanatorium during the last fourteen years, 17.50 per cent were cases of laryngeal tuberculosis, and of the latter only 16.61 per cent were regarded as suitable for galvanocautery treatment. In the first ten years a cure was obtained in 62 per cent of the cases, but in the last four years it has resulted in nearly 69 per cent.

The author describes the indirect method of laryngostomy and the technique of the use of the galvanocautery under local anæsthesia. Redundant granulations are an occasional sequela. In two cases a troublesome stenosis developed but tracheotomy was done with a favorable result.

J FRANK DOUGHTY M D

**Woodburn J J. Enchondromata of the Larynx.**  
*Med J Australia* 1926 1: 645

Enchondromata of the larynx are rare. A search of the literature revealed only sixty two such cases and in some of them the diagnosis was doubtful because a microscopic examination was not made.

The author reports the case of a patient 66 years of age who had hoarseness for five years and dysphagia for a year and recently dyspnoea and a loss of weight. External examination showed a hard swelling on the right side of the neck, extending down to the clavicle. The laryngoscope revealed a large round swelling which filled more than half of the hypopharynx on the right side and hid the right cord. The right cord was fixed. The growth involved the right arytenoid cartilage.

At operation a deep dissection was done on the right side of the neck and an opening made into the lower portion of the pharynx. The cricoid cartilage, the right wing and the lower third of the

left wing of the thyroid cartilage were removed. Death occurred five days later from bronchial pneumonia. The diagnosis of enchondroma was based on the findings of microscopic examination.

GEORGE R. McAULIFF, M D

**New, G B Surgical Diathermy in Laryngology**  
*Arch Otolaryngol*, 1926, **111**, 301

In the treatment of new growths or benign lesions in the nose and throat, surgical diathermy is a valuable addition to the well known methods of treatment for local lesions. The selection of the best form of treatment for the various types of lesions, variously situated, is of the greatest importance, particularly in the case of malignant lesions. For the latter a combination of methods may give the best results.

Diathermy is of advantage over the other forms of cauterization because (1) It is not necessary to protect the tissues around the area treated. (2) There is no bleeding during the operative procedures. (3) The active electrode is easily carried into the nose, pharynx, or larynx, without burning any areas except those treated. (4) Local anæsthesia with gas may be employed if necessary. (5) Sterilization is effected by heat brought from the depth of the tissue, the wounds being therefore cleaner.

Objections to it are the fact that the destruction, which varies according to the size of the patient and the size of the electrodes, is much greater than appears at the time of the operation, and there is danger of secondary hæmorrhage. It is questionable, however, whether secondary hæmorrhage is any more likely to occur with this than with other types of cauterization.

Diathermy seems to be particularly adapted to angiomata in adults. Formerly radium was buried in the tissue. In the cases of infants, radium is very

satisfactory, but in those of adults its action is very slow and unsatisfactory. To destroy benign and malignant lesions in the nose, an electrode with a small point may be carried directly to the site of the lesions without burning other tissue, as in the control of bleeding of the septum or the destruction of small polyps of the nose. Diathermy is more satisfactory for the destruction of synechia of the septum than the use of the actual cautery as it causes less reaction.

For papillomata of the larynx both in adults and in children, the results so far have generally been satisfactory. In the treatment of malignant tumors about the nose, sinuses, and jaws, diathermy has almost entirely replaced the other forms of cauterization, or is combined with radium. In cases of low grade malignancy, diathermy is the usual treatment, while in cases of more active epithelioma and lymphosarcoma, radium is usually depended upon to destroy the growth. The same is true of the pharyngeal lesions, radium being employed for the more active epitheliomata and sarcomata, and diathermy for some of the low grade lesions.

For malignant tumors of the larynx the author prefers thyrotomy and excision, and laryngectomy. While thyrotomy and destruction of a small lesion with diathermy should give a satisfactory result, cases have been reported in which cartilage was destroyed and other untoward results have followed.

Diathermy has an important place in the treatment of many lesions about the nose, throat, and mouth. It may prove to be the best means of treating papilloma of the larynx in adults and possibly also in children.

Any one measure should not be emphasized to the exclusion of others until experience has proved its value.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS, CRANIAL NERVES

Revel Barbezler and De Martel A Case of Otic Abscess of the Cerebellum (Note au sujet d'un cas d'abcès du cervelet d'origine otique) *Bull et mém Soc nat de chir* 1926 lvi 95

A man 37 years of age was admitted to the hospital February 4 1925 with paralysis of the left side of the face and otorrhea. His condition of torpor or hebetude suggested a serious intracranial complication. Enlargement of the spontaneous perforation of the tympanum by the otologist caused an increase in the discharge from the ear and some improvement in the temperature and pulse but no improvement in the general condition. The torpor increased and the pulse rate decreased to 52. Operation was then proposed but refused.

On February 20 the patient complained of violent occipital headache and disturbance of balance. He was able to stand only by spreading his feet apart. Romberg's sign was absent. Hypermetria was present on the left side and there was spontaneous nystagmus. The ocular reflexes were normal and the pupils were equal. There was no papilloedema.

The pulse rose to 70. Vomiting then began the torpor increased and adiadochokinesis developed. There was more marked ballottement of the left hand than of the right. The diagnosis was chronic mastoiditis complicated by facial paralysis cochlear and vestibular labyrinthitis and probably cerebellar abscess. On March 4 the mastoid was opened. The antrum was found filled with pus and fungosities. The capsule of the labyrinth was normal as was also the exposed descending part of the sinus. On exposure of the cerebellar meninges two punctures failed to show pus. Drainage was established.

After the operation the patient's condition improved very little. A neurological examination made July 6 showed even more marked symptoms of cerebellar abscess. At another exploration done March 7 another abscess was discovered and evacuated. The torpor increased however and the patient died March 10. Death was due to the delay of surgical treatment the patient having refused operation for some time and to the fact that at the first operation only one of two abscesses was found.

The authors have studied the reports of seventeen cases of cerebellar abscess collected from the literature. In eleven the abscess followed chronic otorrhea and in six was due to acute or recent otorrhea. In their own case the ear disease was of two months duration. In fourteen of the cases reported in the literature the abscess was solitary in two there were two abscesses and in one there were three. In four cases the infection of the cere-

bellum occurred by metastasis and in five there was a labyrinthitis or an osteitis of the internal cortex. In the authors' case the infection must have been carried by the blood or through the perilymph spaces of the nerve trunks as the tissues adjacent to the cerebellum were intact.

The symptoms described in most of the case reports are not the focal ones but those due to intracranial pressure viz headache somnolence or coma which are present in the majority of the cases and vomiting which occurs in 50 per cent. When papilloedema is looked for it also is found in about half. Bradycardia was mentioned in only a fourth of the case reports studied and cerebellar symptoms in only twelve. Adiadochokinesis hypermetria and difficulty in passive movements are mentioned in eight. There was lateropulsion on the side of the lesion or the opposite side in four cases and spontaneous deviation of the index finger in the same number. The cerebrospinal fluid was rarely examined although the authors believe the polynucleosis found in their case is an important sign. Compression of the homolateral pyramidal tract with its sequelae Babinski's sign epileptoid tremor and exaggeration of the reflexes is mentioned in only three case reports. Pressure on neighboring nerves was rarely described but in one case there was paresis of the fifth seventh and eleventh pairs and in the authors' case the fifth seventh and eighth pairs were affected.

The prognosis is unfavorable. In the seventeen cases reported in the literature there were nine deaths. The high mortality is due to the fact that the abscesses are frequently multiple and only one is found.

In the discussion of this report CUNEO called attention to the fact that the authors failed to say whether the cerebellum was entered inside or outside of the vertical portion of the lateral sinus. He stated that abscesses of otic origin are generally approached from inside the sinus and he believes that this is the best route. If the symptoms persist a second operation is indicated. If an abscess of this kind has been approached from inside the sinus and re-operation is indicated Cuneo explores outside the sinus at the second operation. He believes that Lemaitre's method of using a tightly fitting drain for the meninges has been generally accepted.

ANDREW G. MORGAN, M.D.

Lampe W. The Efficacy of the Substance of the Posterior Lobe of the Human Hypophysis (Ueber die Wirksamkeit der Hinterlappenssubstanz der menschlichen Hypophyse) *Wien klin Wchenschr* 1926 xxvii 15

Several years ago Trendelenburg and Bergmann found in the posterior lobe of a human hypophysis a

substance just as efficacious as the corresponding substance obtained from cattle. Previously, Maresch and Pick had demonstrated the hormone in the human hypophysis. In 1923, Smith and McClosky described a method of making a dry preparation of the organ which can be kept for years and accurately titrated. Dry preparations were made by the author according to this method from twenty human glands.

Immediately after their removal from the body, the glands were carefully split sagittally so that the borders of the anterior portion and the medial portion could be easily seen. The two parts were then separated and the isolated posterior lobes placed in a 3 c cm glass and covered with acetone. An hour later the acetone preparation was cut into small pieces and placed on ice, where it was kept overnight. Early the next morning the acetone was removed and the container placed in a drier for twenty four hours at a temperature of 37 degrees C.

After three days the preparation was placed in a bag of hardened filter paper and extracted for three hours in a Soxhlet apparatus with 50 c cm of acetone. The mass was then rubbed up to a fine powder in an agate mortar, placed in a drier for twenty four hours, and tested. For the tests, 1 mgm of the substance was rubbed up with 1 c cm of a 0.25 per cent solution of acetic acid, boiled, and filtered.

The effect of this extract on the blood pressure was determined by experiments on decerebrate cats (threshold value from 10 to 15 mm Hg) and its antidiuretic effect was determined on dogs with vesical fistulae (threshold value the dose which reduced the amount of urine from 20 to 25 per cent 200 minutes after the administration of 250 c cm of water) and on a Trendelenburg uterine preparation.

The active principle is very resistant to external influences. In the human hypophysis it is demonstrable in various amounts. It has the well known characteristics of the preparations made from animals.

Binnz (G)

**Lund R. Considerations on the Surgical Treatment of Tumors of the Hypophysis** *Acta chirurg Scand* 1926 lix 491

Lund reports four cases in which an operation was performed on the pituitary gland according to von Eselsberg's modification of Schloffer's method and two in which it was performed according to the Hirsch method. In the first three cases there was a tumor which on microscopic examination was found to be adenoma. In one of these cases the result was good, but in the two others there was only temporary improvement in the patient's condition and death occurred six months and three years later respectively. In the fourth case, in which the condition could scarcely be called a pituitary tumor death occurred immediately after the operation. In the fifth case there was acromegaly with symptoms which, like those in the other cases, showed that the tumor had spread far over the border of the sella turcica. Operation revealed a cyst filling the entire

sella which was enlarged. The cyst was drained. The patient died later of uræmia. On section, the remains of the tumor (an adenoma having its origin in the anterior lobe of the pituitary gland) were found extending far up into the cerebrum. In the sixth case operation revealed no tumor in the sella but after treatment with radium caused improvement.

Following these case reports the author discusses the various transcranial and transphenoidal methods of operation. He describes the Hirsch operation in detail. Autopsy and roentgen investigations have shown that, instead of being thick and massive, the part of the clivus blumenbachii which adjoins the sella is often only a millimeter thick and that there fore probing toward the sella may be associated with the danger of penetrating to the pons cerebri.

In conclusion the author discusses various diagnostic factors of importance with regard to the location and extent of a tumor. Marked involvement of the optic nerves is a sign that the tumor has spread upward far beyond the limit of the sella. Choked disk is rare, but was found in the author's third case. In the case of acromegaly the tumor had begun inside the sella. Such cases and the chromophobe tumors of the anterior lobe of the pituitary body should always be operated upon by the transphenoidal route. Tumors of the prähypophyseal duct should always be operated upon transcranially and cases of adiposogenital dystrophy should usually be operated upon in this manner.

The sella turcica may seem to be of normal size in the roentgen pictures, especially in cases of tumors of the prähypophyseal duct, and it may be greatly enlarged in the absence of a cerebral tumor (hydrocephalus) and in cases of cerebral tumors not related to the pituitary gland. When the cerebrospinal fluid is not normal (pleocytosis) a transcranial operation is contra indicated because the increase in the cells may be a sign of a connection through the floor of the sella between the meninges and the pharynx, in which case there would be considerable danger of meningitis associated with that type of operation.

**Hammes E M. Spontaneous Meningeal Haemorrhage With a Report of Seven Cases** *Minnesota Med* 1926 ix 305

Of the three types of intracranial hemorrhage viz that due to apoplexy within the brain substance the traumatic type resulting in an extradural clot, and the subarachnoid bleeding resulting from trauma or some other cause, the author discusses the last named.

Besides trauma, he gives as etiological factors arteriosclerosis, acute bacterial infections (haemorrhagic type) syphilis and chronic alcoholism. In some cases the bleeding comes from the rupture of small aneurysms due to arteriosclerotic changes or congenital defects in the media of the blood vessel walls. According to Goldflam, there is a true diapedesis in these cases.

In fractures of the vertebrae with injury to the cord myelography has great possibilities. Its findings may be decisive when the indications for operation are not clear. It is of value also for the recognition of so called late injuries of the cord following fracture of the spine such as pocket formation and fibrosis of the meninges.

In the technique used by the author 40 per cent iodipin is injected into the cisterna cerebellomedullaris. The maximum dose is 2 c cm. The first puncture must penetrate the membrane. If other punctures are made the iodipin may escape from them into the muscles of the neck. The roentgen picture should be taken immediately after the injection and with the patient in a moderately oblique position.

Signs of irritation are noted in about 50 per cent of the cases but no deaths from the procedure have been reported. The absorption of the oil requires two years or longer. The possibility of injury depends upon the dose as was demonstrated experimentally by Klets and Peiper. Nonne proved that in the dose usually given iodipin is not dangerous to the human spinal cord.

Mvelography is to be regarded as a strictly surgical procedure and should be performed only by those who are experienced in the work and on the most definite indications.

The article contains a number of excellent sketches and roentgen pictures. FLEISCHLIN (Z)

### PERIPHERAL NERVES

Sergeant E. Baumgartner R. and Border F.

Eight Cases of Phrenicectomy (*À propos de huit cas de phrénicectomie*) *bulletin de la société de médecine de la ville de Paris* 1926 xlvii 30

Alexander has reported 240 cases of phrenicectomy without a serious accident. Leiche reported one death on the day after operation in a case of unilateral caseous pulmonary tuberculosis (not verified by autopsy) in which after functional amelioration pneumothorax with mediastinal emphysema developed and another death due to asphyxia which occurred on the operating table in a case in which phrenicectomy was done as an adjunct to pneumothorax for bronchiectasis and autopsy showed inundation of the bronchi of the opposite lung. To prevent inundation of the bronchi of the opposite lung Sergeant performs the operation with the patient in the sitting position. This is advisable especially when there is considerable expectoration.

The cicatricial processes of true curative value—not the functional amelioration which often results from simple immobilization of half of the diaphragm—may not occur until after from six to eight months. Hence failure of the operation must not be assumed too soon especially when the lesions are extensive and complicated by phrenocostal adhesions. In general the time required for recovery parallels the rate at which the diaphragm becomes elevated. The authors have never seen true and definite im-

provement without a marked rise of the paralyzed half of the diaphragm. The earlier and the more marked the rise the greater the chance of healing. An elevation of the diaphragm not over 2 cm. has practically no effect upon the lesion. In some cases the ascent may be early and progressive but in others it may not occur until late and may not make marked progress until after many months.

There is a chance of benefit as long as the rise of the diaphragm is not completely arrested but a delay in its rise not only retards but may destroy the effect desired as it permits extension or complications of the disease especially in pulmonary tuberculosis and certain bronchiectases and suppurations of the base of the lung. The favorable effect of diaphragmatic hemiplegia on expectoration may cause retention.

The best indication for phrenicectomy in tuberculosis is a pleuropulmonary lesion limited to the base of the lung. According to some statistics the operation is best performed as an adjunct to pneumothorax or thoracoplasty but recently it has been performed independently of other procedures. In bronchiectasis limited to the base of the lung it may lead to recovery unless the lower lobes have been rendered stony hard by the disease. The authors believe that phrenicectomy is one of the first surgical procedures to be tried in unilateral bronchiectasis or abscess of the lower lobe. In such cases it is especially valuable as an adjunct to thoracoplasty or pneumothorax. Diaphragmatic hemiplegia diminishes the danger of rupture to which a simple pneumothorax exposes an intrapulmonary suppurative collection. Rist believes that the ideal treatment for bronchiectasis is artificial pneumothorax and that phrenicectomy should be limited to cases in which total or partial pleural union renders artificial pneumothorax impossible.

The authors have performed phrenicectomy in two cases of pulmonary tuberculosis, four of bronchiectasis and three of fetid pulmonary suppuration. From the results they conclude that it is a relatively harmless procedure the effect of which varies according to the nature and extent of the lesions.

WALTER C. BURKE, M.D.

### SYMPATHETIC NERVES

Jonnesco T. and Ionescu D. Experimental and Clinical Investigations of the Functional Condition of the Heart and Blood Vessels Following Extirpation of the Cervicothoracic Sympathetic Chain (*Experimentelle und klinische Untersuchungen ueber den funktionellen Zustand des Herzens und der Gefaesse nach Extirpation des cervico thorakalen Sympathicustranges*) *Zeitschrift für ges. exper. med.* 1926 xlviii 516

Experimental studies on dogs and human beings have shown that the accelerator nerves are not necessary for life. In patients subjected to resection of these nerves some time ago the authors found that the variation in pulse frequency and blood pressure was within the normal limits.

Disturbances of rhythm were not observed. Functional tests of the heart by means of graduated exercises gave good results in those recently operated upon and those operated upon some time previously. In patients sympathectomized for angina pectoris, the pulse returned to its original rate within two minutes. Exclusion of the coronary constrictor and other pressor reflexes is followed by improvement in the myocardial circulation.

Roentgenological studies showed that Jonnesco's operation has no influence on the shape or the various diameters of the heart.

Experiments on dogs demonstrated that the removal of both stellate ganglia does not influence the various waves of the electrocardiogram. In clinical cases no increase in the conduction time was found even when bilateral sympathectomy had been done. In the authors' opinion, this fact

indicates that, in the absence of the accelerators the vagi do not develop a negative dromotropic effect. Following the intravenous injection of 0.01 mgm of adrenalin in the cases of bilaterally sympathectomized patients there was an increase in the pulse rate and blood pressure. This observation shows that, in the absence of the accelerators, the heart reacts to adrenalin as it does under normal conditions.

After bilateral section and subsequent degeneration of the sympathetic nerve endings, ergotamin in small doses caused a slowing of the pulse and a drop in blood pressure.

In conclusion the authors state that cervico-thoracic sympathectomy is not a palliative but a curative operation as it causes the cessation of the attacks by removing all efferent pathways.

RIEDER (Z)



# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Warren S L The Bacterial Flora of Cancer of the Breast *Am J M Sc* 1926 **clxxi** 813

Warren cultured micrococci and diphtheroids from cancer tissue obtained from seven human breasts without obvious areas of infection. The same organisms were present also in a breast affected with chronic mastitis and in parts of a breast not involved by cancer. Warren concludes that these organisms are casual inhabitants of the breast structures and play no direct part in the production of cancer of the breast. From a review of the literature he concludes that Nuzum's micrococcus which seems to be the same as the one he describes has been obtained at different times in the past but has been given different names. J FRANK DOUGHTY MD

Pfahler G E and Widmann B P The Relative Value of Various Techniques in the Radiation Treatment of Carcinoma of the Breast as Reflected in the Statistical Analysis of 701 Private Cases with Observations as to the General Value of Radiation *Radiology* 1926 **vi** 493

During the past twenty five years Pfahler's technique in the treatment of carcinoma of the breast has varied. The early cases were treated with unfiltered rays by fractional doses often repeated. After 1905 a leather filter was used first but later was gradually supplemented by aluminum filters. As more penetrating rays were applied the thickness of the latter was increased and from 1910 to 1922 usually ranged from 4 to 6 mm. Since 1922 high voltage rays with a 0.5 mm copper filter have been employed.

Up to 1905 the treatment was given chiefly over the operative field without definite limitations of the area involved. Between 1905 and 1910 cross firing was developed the rays being delivered into the mammary region the axilla and the supra clavicular region. Beginning at about 1910 definitely outlined fields of limited extent were irradiated this practice being followed until 1922. With the use of high voltage and highly filtered rays fields became larger. At first an intensive method of treatment was used the entire dose being given in from one to three days. As this caused considerable radiation sickness it was gradually replaced by the use of less penetrating rays given in fractional doses over various areas depending upon the extent of the lesion and the patient's condition. A table shows the radiation values according to the year of beginning treatment and expressed in percentages of patients alive after three and five years.

The general impression gained by the authors was that each advance in technique was followed by an improvement in the results obtained. No accurate comparison year by year was possible because of the variability in the character of the cases treated.

With a view toward making approximate estimates of the value of radiotherapy in cancer of the breast the histories of 701 cases referred for such treatment are analyzed in detail and the findings compared with the statistics of cases treated by other methods. The cases included early operable ones in which operation was contra indicated or refused, late operable cases with glandular involvement, recurrent operable cases of advanced recurrence and metastasis, and primarily inoperable cases. In some of them radiotherapy only was used in others, it was employed in conjunction with surgery.

The article includes tables showing the types of cases, the extent of the involvement and the duration of life after beginning treatment. The percentages of patients alive after three and five years in the different groups compare very favorably with those of surgical longevity tables especially in the late operable and recurrent cases. In the primarily inoperable cases treated by irradiation the average duration of life was considerably longer than in untreated cases reported by others.

An analysis of the results obtained indicates very clearly the great advantage of radiation therapy in carcinoma of the breast as an adjunct to surgery and in the hopeless recurrent and inoperable cases. It is of value not only in increasing the duration of life but also in relieving the suffering. Good end results depend upon the early recognition and early treatment of the condition. The patient will survive longer if radiation treatment can be instituted early—at the latest from two to four weeks after operation. ADOLPH HARTUNG MD

Klopp E J Billings A E Manges W F and Gibbon J H Symposium on Surgery of the Breast *Atlantic M J* 1926 **xxiv** 520 522 524 526

KLOPP in discussing carcinoma of the lactating breast calls attention to its marked malignancy and states that when the diagnosis is made it is too late for surgical intervention. Suppurative mastitis the condition with which it is most often confused is characterized by bright redness of the skin, elevation of the temperature and leucocyte count and the presence of fluctuation. In carcinoma of the lactating breast there is usually no lump and the skin shows a brawny induration. As most of the patients operated upon die within a few months

and many of the others show early involvement of the other breast. Klopp advocates treatment with radium and the X rays. He reports three cases, in all of which the disease was rapidly fatal.

BILLINGS states that pyogenic infections of the breast are usually caused by the staphylococcus or streptococcus aureus and result in either an acute mastitis or abscess formation. The abscesses are subareolar, intramammary, or retromammary. In opening superficial abscesses Billings uses the ordinary incision radiating from the nipple, but for deep abscesses he advocates more general use of the Thomas Warren incision (beneath the inferior surface of the breast) with through and through drainage for generalized infection and the employment of Dakin's solution.

Tuberculosis of the breast, which may be primary or secondary, is rare, only about 200 cases having been reported. The most common initial sign of tuberculous mastitis is a painless lump. The course of the condition is more rapid than that of carcinoma. The suggestive signs are rapidity of development and changes in the size and consistency of the tumor, early axillary lymph node involvement, a marked tendency toward the formation of abscesses and fistulae, and retraction of the nipple. The most satisfactory treatment is complete excision of the breast and involved lymph nodes.

Syphilis of the breast may be manifested by the initial lesion, a mucous patch, a diffuse mastitis of the secondary stage, or gumma formation. It is difficult to make a differential diagnosis between gummatous, the infiltrating mastitis of the secondary stage, and carcinoma, but with proper investigation, laboratory aid, and, if there is doubt with regard to the Wassermann reaction, a therapeutic test with antisyphilitic treatment the nature of the condition will usually be revealed. The treatment of syphilis of the breast is, of course, the treatment of constitutional syphilis.

Actinomycosis and sporotrichosis of the breast are very rare conditions due to fungi. A diagnosis of either in the early stages is rarely possible. Only by laboratory aid can a positive diagnosis be made. Excision of the involved tissue with the free administration of iodides internally and the use of Lugol's solution locally are the measures employed in the treatment of both.

MANGES holds that in carcinoma of the breast X-ray therapy is usually second in importance to surgery, but in cases which are not suitable for surgery, such as those with recurrence or metastases, it is of first importance.

The X rays are of definite value in determining whether or not there are metastatic lesions in the chest or bones. Such studies should be made routinely before operation. When there is evidence of metastases in the bones or within the chest the lesion is primarily inoperable.

In advanced inoperable cases in which there is much destruction of breast tissue and the lesion is firmly attached to the chest wall or there is massive

glandular involvement, or the intrathoracic lesions are extensive, a cure is not to be expected from the use of the X rays or surgery or of both. If the patient still has the strength to withstand the reactions from X-ray treatment, the results in such cases are about as follows: first, relief of the pain (at times this is striking, permitting the discontinuance of morphine), second, control of the hemorrhage and sloughing, third, retardation of the progress of the disease both in the primary growth and in the metastatic area, fourth, encouragement of the patient and to some extent restoration of her social status, fifth occasional conversion of an inoperable case into an operable case, and sixth, prolongation of life.

Postoperative X-ray treatment should be given only when the wound has healed sufficiently so that there will be no danger of its separating as the result of the action of the rays on the young scar tissue. This time is from two to four weeks after the operation.

GIBBON states that in their zeal to operate early and thoroughly surgeons have become rather careless with regard to diagnosis and many of them make little attempt to differentiate from cancer any of the benign growths except the hard adenomata occurring in the breasts of young women. Any other mass in the breast of a woman near 40 years of age they have considered sufficient warrant for removal of the breast.

In an analysis of his last 200 breast cases (excluding infections), Gibbon found that the non-malignant breast conditions requiring surgical treatment were nearly as common as the malignant (45 per cent of the 200). The diagnosis of benign tumors is usually not difficult, but when it is, the decision should be made by the excision of considerable breast tissue rather than by incision.

Cysts of the breast are very common and rarely undergo malignant change unless they are subjected to improper treatment such as irradiation. They are most common in women who have not borne children, and occur usually between the ages of 30 and 45 years. As a rule they are single, but they may be multiple and sometimes occur simultaneously in both breasts. A cyst is often a painful condition, especially if it is of rapid development. The pain and soreness are increased by menstruation. Palpation reveals circumscription and fluctuation, the one when the breast is gently rolled on the chest wall under the hand and the other when the tumor is held against a rib and palpated with two fingers.

When the breast is large and the cyst is small, fluctuation is sometimes difficult to detect and often overlooked.

Enlargement of the axillary lymph glands is never present unless suppuration has occurred in the cyst which is extremely rare and easily determined from the local signs.

Chronic cystic mastitis is not so easily diagnosed as cancer or the single cyst because its physical

signs are often more vague. It occurs as do cysts and cancer at about middle adult life. The patient complains of pain or discomfort in the breast especially at the menstrual period, a history rarely obtained in cancer. The area of the breast involved is usually the lower and outer quadrant and often a certain amount of induration and sometimes lobulation of the breast tissue can be felt in this region. Such patients should not be turned away with the statement that nothing is wrong but should be advised to present themselves every two or three months for examination.

A discharge of serum or of blood from the nipple used to be considered evidence of malignancy. This is not rare after the menopause especially if the latter has been brought about by surgery, radium or the X rays and is of no serious significance. However if the discharge is accompanied by ulceration of the nipple or by a mass under it operation is indicated.

The fibromata or more correctly speaking the adenomata are easily recognized. They occur in young adult life or a little later and they may be single or multiple. They are hard or tense freely movable smooth unilaterally painful. The papillary cystadenoma is a benign tumor and has been included with the adenomata.

Fixation of the breast to the chest wall (except in chronic cystitis) is a local hardness retraction of the nipple and local glandular enlargement but probably a diagnosis of a benign condition and it is the performance of a radical operation.

Robertson, Jones, Thomas or Warren in carcinoma of the breast enter periphery of the breast from the pectoral muscle and the entire under surface of the breast and the excision of a certain amount of the surrounding breast tissue with the tumor excised. If these are all of the breast tissue is removed through this incision. X-ray treatment and manipulative therapy would never be used in benign breast conditions as they may stimulate degenerative changes.

J. H. M. D.

## TRACHEA LUNGS PLEURA

Pouzin Malegou Y. Separation of a Pleural Adhesion in the Course of the Fourth Year of Insufflation of Artificial Pneumothorax (Détachement d'une adhérence pleurale au cours de la quatrième année d'insufflation d'un pneumothorax artificiel). *Bull. et mém. Soc. méd. d'hôp. de Paris* 1926 vol. 51.

The author reports the case of a patient 32 years old who was treated for extensive fibrocystic tuberculosis of the left lung by artificial pneumothorax over a period of four years. In the first year injections were made every fifteen days in the second year every 3 weeks in the third year every four weeks and in the fourth year every five weeks. Several insufflations were followed by collapse of the lung

except in the left upper thorax which was blocked by an adhesion at the level of the hilus (shown by the X ray). The treatment caused cessation of the brutal almost complete subsidence of the functional symptoms and disappearance of the tubercle bacilli from the sputum. After four months the cough was negative the expectoration slight and the temperature normal.

The X ray picture remained constant until the fourth year. After a 400-cm injection with a terminal pressure of +6 during the fourth year the X ray showed retraction of the left apex toward the midline. On the following day pain suddenly developed in the left side and the temperature rose to 38 degrees C for two hours. The next insufflation also was followed by fever but subsequent injections were afebrile. The X ray showed total pneumothorax on the left side.

The author considers this case unusual. The adhesion was extremely solid for nearly three years it resisted an average pressure of +14 (sometimes +17) and in the fourth year yielded suddenly thereby transforming a partial into a complete pneumothorax. The case shows also that a non collapsed portion of lung does not necessarily have the visceral and parietal pleura adherent over its entire surface.

The partial pneumothorax gave a very satisfactory result. If collapse of the upper part of the left lung had seemed advisable it might have been accomplished by injecting above as well as below the adhesion.

WALTER C. BURKET M.D.

Manges W. F. Non Opaque Foreign Bodies in the Air Passages. X Ray Diagnosis and Localization. *Brit. J. Radiol.* 1926 xxxi 119.

A non-opaque foreign body lodged in a bronchus may be diagnosed and localized by means of the X ray with almost the same degree of certainty as an opaque foreign body. Non opaque foreign bodies which are not found at the first examination are often revealed when repeated examinations are made. Most non-opaque foreign bodies belong to the vegetable kingdom. They may produce obstructive emphysema, atelectasis, drowned lung or lung abscess.

Obstructive emphysema is a condition in which the lung distal to the foreign body is overdistended with air because there is greater obstruction to the air current at expiration than at inspiration. The area of lung involved depends upon the location of the foreign body. When it is in the main bronchus one entire lung is overdistended and may come to occupy a very large portion of the chest cavity at expiration. Therefore the X ray signs of foreign body in a bronchus which are due entirely to mechanical factors are the following:

1. Increased transparency of the affected lung the rays passing through the affected side more readily.

Depression and limitation of motion of the diaphragm on the affected side. The diaphragm on

the affected side is frequently considerably lower at expiration than at inspiration because of the more powerful contraction of the intercostal muscles compressing the obstructed lung and forcing the diaphragm down. The excursion on the unaffected side is at times most striking.

3. Displacement of the heart and the other mediastinal structures to the unaffected side at expiration. At times the heart seems to swing like a pendulum from the upper mediastinum, and at other times it seems that the entire mediastinum, both upper and lower, moves laterally to almost the same degree. In the former case the obstruction is probably limited to the lower half of the chest, and when there is noticeable displacement of the upper mediastinum there is probably also obstruction to the upper lobe bronchus.

Atelectasis occurs when the size and shape of the foreign body are such that it obstructs the bronchus completely to inspiration. Whatever the cause of such plugging, the air distal to the foreign body is rapidly absorbed and the lung shrinks to small size and becomes a mass of solid tissue casting a homogeneously dense shadow. The X-ray diagnosis depends upon the density of the shadow, the diminution in the size of the lobe or lung involved, and the displacement of the heart and mediastinal structures to the affected side.

Drowned lung is a condition in which exudate arising distal to the foreign body gradually goes by gravity into the smaller bronchi and air vesicles filling them and driving out the air or causing it to become absorbed. The exudate adds density to the lung shadow and may be present in such quantity that the lung involved may still occupy its normal space in the chest.

Lung abscess may occur fairly early after the aspiration of the foreign body. When there is evidence of an infectious pneumonia in the distribution of the bronchi of the lower lobe it is most probable that the lesion is due to the aspiration of foreign material unless there is a very definite history of some other cause.

When the foreign body is in the trachea the following signs are noted:

1. An increased transparency of both of the lungs.

2. Depression and limitation of motion of both sides of the diaphragm. The diaphragm is lower at expiration than at inspiration because of the more powerful contraction of the accessory muscles of respiration. When there is obstructive emphysema of both lungs the diaphragm moves downward and seems to leave the heart suspended in the chest so that its entire lower border is visible.

3. Rotation of the heart so that its transverse diameter is less at expiration than at inspiration. If it is found that the heart shadow is narrower at expiration than at inspiration, we may conclude that there is expiratory difficulty because the chest wall contracts at expiration even when there is expiratory obstruction.

Occasionally there are cases showing overdilatation of both lungs, but at the end of expiration the heart goes a little more to one side and the diaphragm is depressed on one side more than on the other.

In such cases the foreign body is at the bifurcation and producing expiratory obstruction on both sides but a little more obstruction on one side because it has a tendency to go into the bronchus on that side.

When the foreign body is in the main bronchus and the expiratory obstruction is only slight, localization as to the exact position in the bronchus is difficult, but when the obstruction is more marked it becomes apparent that one entire lung is involved and the aorta as well as the heart is displaced laterally.

When the foreign body is below the upper lobe bronchus and the obstruction is slight, localization is difficult, but when the obstruction is marked, the signs are positive for localization because it is seen that only the lower part of the lung remains overdilated at expiration and the heart swings more like a pendulum with the aorta remaining fairly fixed.

In true atelectasis and drowned lung the localization is apparent. In areas of infection the foreign body may either go into the center of the infected area or remain at its original location, held by contracting cicatricial tissue. *RAYMOND GREEN M D*

**Tucker G. Recent Developments in Peroral Endoscopy, Oesophagoscopy and Bronchoscopy for Disease. Report of Cases. Surg., Gynec. & Obst. 1926 xlii 743.**

Tucker reports two cases of postoperative massive collapse of the lung which were examined bronchoscopically.

The first was that of a boy 13 years of age who was operated upon under ether anesthesia for the drainage of an appendiceal abscess. Thirty-six hours after the operation the patient became very ill and collapse of the right lung was shown by the X-rays. The expectoration was typically tenacious. Bronchoscopy carried out forty-eight hours after the onset of symptoms showed the tracheal mucosa to be reddened and gray. The lower trachea and right bronchus were definitely inflamed. The stem bronchus of the right middle and lower lobes was completely blocked by thick tenacious secretion. This secretion was aspirated. Physical and X-ray examination immediately after the aspiration showed that air was entering the right lung and that the displacement of the heart toward the right side was less. Within twenty-four hours the collapse recurred, but at the end of forty-eight hours the lung had begun to clear. Bronchoscopy at the end of the third day showed a marked diminution in the inflammatory reaction of the trachea and bronchus. The secretion was thin and could be aspirated without any difficulty. Recovery was uneventful.

The second case was that of a 6 year-old boy, who was operated upon under ether anaesthesia for the closure of a gastrostomy fistula. Thirty six hours after the operation pulmonary symptoms developed and by the end of forty eight hours there were typical signs of massive collapse of the lung. At bronchoscopic examination seventy two hours after the operation the left bronchus was found greatly inflamed and filled with a thick tenacious secretion. Following the aspiration of 10 c cm of the secretion air entered the left lung. One and one half hours later roentgenograms showed the left lung to contain considerable air but after forty two hours the lung was again collapsed. After the aspiration of 14 c cm of tenacious secretion the lung again became aerated. Three days later because of a recurrence of the pulmonary collapse a third bronchoscopy was done. The secretion was then much less viscid. Three subsequent bronchoscopies were carried out.

Postoperative pulmonary abscesses may result from the inspiration of infected material or from a blood borne infection. Those caused by the inspiration of infected material directly into the bronchial tree are best treated by early aspiration through the bronchoscope. Three cases of pulmonary abscess treated bronchoscopically are reported.

Case 1 was that of a man 40 years of age who developed pulmonary symptoms four days after a tonsillectomy and was treated medically for four months. Bronchoscopic studies revealed an abscess in the lower lobe of the left lung. Expectant treatment for four weeks brought about slight improvement. The patient then developed a higher fever and the involved area increased in size. Eight bronchoscopic treatments carried out at semi weekly intervals resulted in a complete cure after two months. When the patient was first admitted to the hospital bronchoscopic treatment was contra indicated by pleural involvement.

Case 2 was that of a boy  $7\frac{1}{2}$  years of age who developed a cough the first week after a tonsillectomy. Upon his admission to the hospital seven weeks after the operation a pulmonary abscess was located in the right upper lobe. Following bronchoscopy there was considerable fetid sputum. After a second bronchoscopy at which considerable purulent material was aspirated from the right upper lobe the temperature fell to normal and uneventful recovery resulted.

Case 3 was that of a man 30 years of age who complained of pain in the chest two days after an operation on the lower jaw. Upon the patient's admission to the hospital three weeks later an abscess was found in the middle and lower lobes of the right lung. Bronchoscopic treatment was carried out at weekly intervals. After five such treatments the inflammatory reaction had almost entirely disappeared. Three weeks later the bronchus was practically normal and the bronchial tree free from pus. At the end of four months the patient was considered cured.

Tucker reports also a case of malignancy of the thyroid in which the bronchoscope was used as an aid to tracheotomy. The compression and distortion of the trachea were so great that tracheotomy would probably have been impossible without bronchoscopy. In a case of lymphosarcoma of the mediastinum tracheotomy was performed with the bronchoscope *in situ*. Because of the marked compression of the trachea down to its bifurcation and compression of the left bronchus a Jackson cane tracheotomy cannula was used to permit free access of the air to the right lung. In a case of retropharyngeal oesophageal abscess which was drained the bronchoscope was used to keep the trachea open and to aspirate purulent material accumulating in the trachea.

ALTON OCHSNER M D

- kern R A Lung Abscess from the Medical Standpoint *Am J Roentgenol* 1926 xv 40,  
 Pancoast H K The Roentgen Ray Diagnosis of Lung Abscess *Am J Roentgenol* 1926 xv 410  
 Tucker G Bronchoscopic Treatment of Lung Abscess *Am J Roentgenol* 1926 xv 419  
 Muller G P Surgical Aspects of Lung Abscess *Am J Roentgenol* 1926 xv 41

KERN In many cases of lung abscess the responsibility for the diagnosis and the selection of the method of treatment falls largely on the internist. The multiplicity of causes producing lung abscess makes it impossible to speak of a typical clinical picture in the early stages as the symptoms depend in a measure on the cause. Abscesses of post pneumatic origin those following tonsillectomy or other operations in a septic field and those due to aspirated foreign bodies present different clinical pictures at the onset but cases of long standing from any cause look very much alike all showing evidences of long continued sepsis with the unmistakable signs of a lung lesion. The physical signs are variable depending upon the location of the lesion and the stage at which the examination is made. Deep abscesses and those near the hilum may give few or no signs, while superficial ones may present the findings of a localized consolidation or cavity. Diagnosis by attempted aspiration is condemned.

An abscess in an upper lobe is more apt to have adequate natural drainage than a lower lobe lesion and therefore is less likely to require external drainage.

An abscess situated close to the lung hilum is not only in close relation to large bronchi and therefore likely to drain spontaneously but is also in an excellent position for bronchoscopic approach. On the other hand an abscess close to the periphery of the lung which is connected with only small terminal bronchi can rarely be emptied satisfactorily by postural drainage and is difficult to reach with the bronchoscope. For the treatment of such a lesion surgerv usually becomes necessary.

All cases of lung abscess require medical treatment at first regardless of their subsequent course.

This should include postural drainage, rest in bed during the febrile stage, and a high calorie diet to maintain the patient's nutrition and strength. The drugs to be used depend upon the indications. Some cases are benefited by autogenous vaccines prepared, preferably, from uncontaminated material obtained through the bronchoscope. Bronchoscopic treatment also is frequently of great value. Medical treatment should not be persisted in too long. It should be checked by frequent careful observations of the physical signs and roentgen examinations. An abscess which has not cleared up at the end of three months is not very likely to do so thereafter without the aid of surgery.

**PANCOAST** The roentgen ray examination of a case of lung abscess should be preceded by a careful clinical study. The purpose of the X ray examination is primarily to confirm the clinical diagnosis, to furnish the additional information needed to establish it, or occasionally, to present the entire pathological picture necessary to explain the subjective symptoms or to correct a mistaken opinion.

The interpretation of the roentgen ray evidence of pulmonary abscess is usually not difficult, but the findings are not always strikingly characteristic. Roentgenoscopic examination is advisable when the condition of the patient will permit it. If possible, it should be made in the erect posture in order to study the diaphragmatic movements, to observe fluid levels and to locate adventitious shadows so that the patient may be placed in the most advantageous position for the roentgenographic examination. Stereoscopic roentgenograms in the erect posture are always essential. Direct lateral views in the erect posture are usually necessary to determine the extent and location of the lesion. If there is a fluid level, these points can frequently be determined still more fully by making a fore and aft view with the patient lying on the unaffected side. Finally, serial studies are frequently required for diagnosis because it is necessary to find cavitation which may not appear at first or to await the clearing up of an obscuring, delayed pneumonic resolution, an excessive inflammatory zone or an atelectasis. A case should be studied serially until the diagnosis is apparently assured.

The cause of a lung abscess frequently has some bearing on the early roentgenographic appearance of the lesion. A postpneumonic abscess may be largely obscured by the changes of delayed resolution or other associated changes. A typical lung abscess presents two essential roentgenological appearances, acute consolidation and cavity. To these may be added such secondary findings as may be produced by extensive areas of congestion, atelectasis, empyema or pyopneumothorax. Successive examinations will show varying appearances, depending upon whether regression or progression of the lesion is taking place. The results of treatment, be it medical, bronchoscopic, or surgical can be studied best in this way. Such complications as rupture into the pleural cavity may be readily detected.

**TUCKER** Bronchoscopy is of value in both the diagnosis and the treatment of lung abscess. In the diagnosis it will give information relative to the location of the lesion and indicate the amount and character of the pus and the local condition of the bronchi in the affected area. Uncontaminated cultures may be taken from the suppurating area for the determination of the bacteria present or the making of autogenous vaccines. Neoplastic growths can be ruled out. Foreign bodies which may be etiological factors can frequently be located and removed.

Therapeutically, bronchoscopy may be used to aspirate stagnant secretions, remove granulations, dilate strictures, and apply medicaments locally. Bronchoscopic aspiration is indicated particularly when the lesion is in or in close proximity to the bronchi and drainage is deficient, also in the acute cases with definite evidence of aspiration infection.

The bronchoscopic treatments are carried out once or twice a week as the lesion and the condition of the patient may indicate. Under bronchoscopic treatment many patients are benefited and many are cured none are made worse. In some cases the progress of the disease has not been arrested. In a few of these a more definite localization of the lesion has occurred, making the abscess more accessible to external drainage. A case demonstrating the value of bronchoscopic treatment is reported. It would be a mistake to undertake the bronchoscopic treatment of lung suppuration independently. The interests of the patient are best served by co operation of the internist, the roentgenologist, the bronchoscopist and the surgeon.

**MULLER** The treatment of lung abscess resolves itself into adequate drainage of the cavity and dilated bronchioles. When this cannot be done satisfactorily by the postural method or bronchoscopic aspiration in about two months, surgery is indicated. In cases in which drainage is established but the cavity persists after several months, external drainage must be considered. Drainage with the aid of artificial pneumothorax has been advocated but has not been universally accepted. The principal objection to surgical treatment is its high mortality but this is probably not a direct consequence of the operative treatment itself. The disease is a serious one and operation is usually performed months after its onset as a last resort.

Before operation the patient's condition should be improved as much as possible. Salt water infusions or blood transfusions should be given when indicated. The operation should be done preferably in two stages, the lung over the abscess being allowed to become adherent before it is opened. After the cavity has been entered with the cautery, drainage should be established with a soft rubber tube. Subsequently if the patient's condition warrants it and the pathological changes present require it, more extensive surgery may be done, such as cauterizing pneumectomy as introduced by Graham and Singer. Drainage should be continued

for at least six months especially if there is evidence of a bronchial fistula. The patient should be kept under observation by the clinician, bronchoscopist, roentgenologist, and surgeon because 'flare ups' frequently occur and sometimes serious symptoms develop suddenly after recovery seems assured.

ADOLPH HARTUNG, M D

### ESOPHAGUS AND MEDIASTINUM

**Gaudier H** Median Sternotomy as a Palliative Decompressive Treatment for Tumors of the Mediastinum (Sternotomie médiane comme traitement palliatif décompressif des tumeurs du médiastin) *Bull et mém Soc nat de chir* 1926 lii 245

Gaudier reports the case of a woman of 40 years who had a tumor of the breast removed. Ten years later a metastasis developed in the mediastinum without any local recurrence. The right arm then became greatly swollen and the patient suffered from dysphagia, crises of asphyxia, and almost unendurable pain. She was given deep roentgen

therapy, but after each treatment the symptoms became more severe, probably because of congestion and increased pressure.

Under local anesthesia a flap of skin and aponeurosis was turned back and the line between the xiphoid process and the sternum was sectioned. The sternum was then incised along the midline and its lower surface carefully dissected free from the underlying tissues.

The patient immediately felt the most profound relief as if she said a corset that was too tight had been removed. The two halves of the sternum separated 3 cm. In order to keep the space open on respiration a flap was cut from each side, its base being left adherent and sutured to the opposite side with silk. A drain was left in for forty-eight hours. After the operation the blood pressure fell, the pulse became normal, the patient was able to eat and drink without difficulty, and the asphyxia and pain ceased. Roentgen therapy can now be given without causing any signs of congestion.

AUDREY G MORGAN, M D

# SURGERY OF THE ABDOMEN

## GASTRO-INTESTINAL TRACT

Rose E The Relation of the Chlorides of the Body to Disease of the Gastro Intestinal Tract *Atlantic M J* 1926 **xxv** 613

Chlorides are present normally in the plasma in a concentration ranging from 100 to 108 millimols. This method of expressing concentration uses the same limits as those ordinarily employed in designating the degree of free and total acidity of the stomach contents and is equivalent to expressing the concentration in cubic centimeters of 10% N per 100 c cm.

The sodium of the plasma constitutes about 93 per cent of the total fixed base of the plasma in man, while the Cl ions form about 65 per cent of the total acid radicals.

Normally, the concentration of chlorides (partly as HCl and partly as NaCl) in pure gastric juice as secreted varies from 140 to 170 millimols, while after a test meal it is from one third to two thirds this amount. Hydrochloric acid activates the pepsin controls certain phases of pyloric action, and acts as a bactericide. In carcinoma of the stomach the concentration of chlorides in the chyme has been found to be from 75 to 115 millimols while in other benign achylia it ranges from 40 to 75 millimols.

In pernicious anemia there is a deficiency of both hydrochloric acid and sodium chloride. This deficiency impairs gastric digestion and may account for the annoying gastric symptoms. Therefore large doses (4 to 8 c cm) of hydrochloric acid with pepsin are advocated in the treatment of pernicious anemia.

In pyloric and duodenal obstruction experiments have shown that there is a constant fall in the blood chlorides with a rise of the blood urea nitrogen and non protein nitrogen. Similar findings were made in obstruction of the pylorus and upper intestinal tract in man. The administration of sodium chloride with sufficient water in these cases appears to exert a beneficial action and should be used as an adjunct to surgical treatment. Hydrochloric acid does not exert a similar action. According to Haden and Orr, the chlorides of the body have a specific antagonistic action on a toxin produced in the obstructed gut. Gamble finds that after pyloric or duodenal obstruction there is a loss of chlorides into the stomach both as hydrochloric acid and sodium chloride and suggests that it is the loss of the sodium with the attendant diminution of the total salt concentration of the blood which proves fatal in such cases unless the blood concentration is restored to normal by the administration of sodium in the form of NaCl. HERMAN H. HUBER, M.D.

Abt I A, and Strauss A A A Clinical Study of 221 Operated Cases of Hypertrophic Congenital Pyloric Stenosis *Med Clin N Am* 1926 **ix** 1303

Of 221 patients operated upon for congenital hypertrophic stenosis of the pylorus 161 were males and the majority were between 3 and 8 weeks of age.

Vomiting was a sign in all of the cases, and occurred most frequently during the second or third week of life. As a rule it was of the projectile type. Constipation beginning most frequently during the third or fourth week was present in 158 cases. Between the second and fourth weeks there was usually a loss of weight, varying from 4 oz to 4 lbs 8 oz. Among the less frequent symptoms of the condition were constant hunger, restlessness, crying and fever.

Typical large peristaltic waves starting at the left hypochondrium and passing obliquely across to the right were observed in all cases immediately after the baby was given milk from the breast or water from a nursing bottle. A tumor—the hypertrophied pylorus—was definitely palpable in about 25 per cent of the cases. Some degree of emaciation was present in all. The fluoroscopic examination for which a small amount of barium was added to the breast milk given the infant while it was under the horizontal fluoroscope absolutely confirmed the diagnosis of pyloric stenosis.

The rhythmic, snakelike peristaltic contractions seen in the pylorus, independent of the contractions of the rest of the stomach are definitely pathognomonic. In the author's cases the fluoroscopic examination is repeated at the end of two and four hours at which time roentgenograms are taken. If one half or more of the barium milk remains in the stomach at the end of four hours the case is referred for operation. When more than 80 per cent passes through operation is deferred.

As a rule, patients are not subjected to operation immediately upon their entrance to the hospital. An attempt is made to improve their condition before operation. From 100 to 150 c cm of saline solution is given by hypodermoclysis every four hours and from 1 to 2 oz of 5 per cent glucose with 2 per cent sodium bicarbonate is given per rectum every three hours. If their condition is poor, from 50 to 100 c cm of glucose, usually followed within six hours by from 60 to 80 c cm of blood, is given through the superior longitudinal sinus.

The operation is similar to the Rammstedt pyloroplasty, but the mucosa is shelled out more freely from the muscularis and a plastic flap is made of the muscularis. The free edge of the attached omentum is then brought over the pylorus.



While the patient is still on the operating table, 150 c cm of normal saline solution is given by hypodermoclysis. Feeding is resumed early. Beginning within one hour after the operation, 1 dr of Beagmilk is given every two hours the first day. The amount is then increased  $\frac{1}{2}$  dr every few hours. At alternate hours water is given. Glucose per rectum is given as previously described.

All infants gain weight while they are in the hospital and continue to do so after they leave. Vomiting and digestive disturbances have not recurred in any of the cases traced.

RAYMOND GREEN M D

St John F B. Long Standing Ulcer of the Stomach. *Ann Surg* 1926 lxxvii 832

The author reports a case of gastric ulcer with a history of forty years. The patient a 59 year old woman was first operated upon twenty years ago when a large gastric ulcer on the lesser curvature was excised. The next operation ten years ago was an anterior gastro enterostomy. Three years later symptoms recurred and at a third operation adhesions about the stomach were divided. Again the patient received temporary relief but returned seven years later because of severe abdominal pain and vomiting.

St John then did an exclusion operation by sectioning the stomach at the juncture of the upper third and the lower two thirds well above the incisura angularis and performing an anterior long loop gastrojejunostomy. The patient's condition did not warrant the division of adhesions and resection of the distal portion of the stomach. Today three years after the operation the patient is able to eat an unrestricted diet without nausea pain or vomiting.

EARL G. LARSEN M D

Lecène. The Role of Infection in the Development of Ulcers of the Stomach. (Sur le rôle de l'infection dans l'évolution des ulcères de l'estomac). *Bull et mém Soc nat de chir* 1926 lvi 326

Duval has said that infection plays a most important rôle in the evolution of gastric ulcers and that infection of the ulcer is responsible for most of the deaths and also most of the complications following operation for gastric ulcer.

If this theory is correct the excision of an active ulcer is associated with the danger of increasing the virulence of the bacteria in the lesion. Therefore the food given the patient before operation should be rendered as aseptic as possible, the pre operative preparation should include gastric lavage and during the operation great care should be taken to protect the tissues surrounding the operative field. Pre operative vaccination and postoperative serotherapy may also be used.

Lecène does not agree with Duval that the stomach of the gastro-enterostomy should be made as far distant from the ulcer as possible. He places it as near the pylorus as possible to prevent biliary reflux and vicious circle. He does not believe that the ulcer

infection is responsible for peritoneal infection around the suture line or for postoperative gastro jejunal or jejunal ulcers. In his opinion the cause of these conditions is still unknown. He has seen peptic ulcers appear as late as eleven years after gastro enterostomy for ulcer although during all of that time the patient's digestion was normal. The ulcer in such a case could in no way be attributed to prolonged infection.

Rather is Lecène inclined to blame the technique of the surgeon. The technique used today must be still further perfected. Lecène emphasizes the importance of perfect protection of the operating field, rigorous hæmostasis, and the greatest care in suturing.

In conclusion the author says that before we can determine the cause and treatment of ulcer the problems of hydrochloric acid secretion of the gastric glands and the defense of the gastric and intestinal mucosa against autodigestion must be solved.

KELLOGG SPEED M D

Lambret O. Preventive Vaccination Against Pulmonary Complications in Operations on the Stomach. (A propos de la vaccination préventive des complications pulmonaires dans les opérations gastriques). *Bull et mém Soc nat de chir* 1926 lvi 278

The author has just completed a series of 300 consecutive gastric operations without a single fatal complication. Slight complications occurred in fifteen cases.

In 95 per cent of the cases the operation was performed under local anaesthesia.

To prevent pulmonary complications Lambret resorts to vaccination. First an intradermal test is made. If this is negative vaccination is unnecessary. If it is positive an injection of 1 c cm of a solution of enterococcus is given and repeated every second day.

The solution used for the first injection contains 50 million of the organisms that used for the second, 500 million that used for the third, 1 billion that used for the fourth, billion, and that used for the fifth, sixth and seventh, 4 billion. After the injections have been completed the intradermal test is negative.

Patients with a positive intradermal reaction have no specific antibodies against the enterococci in their blood. Vaccination according to the method described causes the appearance of such antibodies. When the reaction is negative the vaccine is unnecessary and dangerous.

Vaccine should not be made from too active bacteria. The doses should be increased progressively as described.

The author hopes to reduce the time consumed in this immunization by the use of bacteriophages given by mouth a day or two before operation. He suggests that the bacteriophages might be introduced also into the operative field.

KELLOGG SPEED M D

**Duval Roux Gatellier and Moutier** The Relations Between the Infectious State of the Gastric Wall and Certain Troubles Following Gastro-Enterostomy Vicious Circle Acute Chronic or Delayed, and So Called Gastrojejunal Peptic Ulcer (Relations entre l'état infectieux des parois gastriques et certains troubles consécutifs à la gastro-entérostomie *circulus vitiosus* aigu chronique tardif ulcère dit peptique gastro-jejunal) *Bull et mém Soc nat de chir* 1926, lii 270

About three years ago the authors published an article in which they advanced the theory that an important factor in the development of certain chronic gastroduodenal ulcers and of complications following gastric operations is infection in the stomach wall and the perigastric lymphatics. Today this theory is generally accepted in France and is becoming widely accepted in Germany.

The complications arising after operations on the stomach, especially gastro-enterostomy, are of two kinds—vicious circle and gastrojejunal peptic ulcer. Vicious circle is of different types, viz., acute gastro-duodenal dilatation, chronic vicious circle according to Finsterer, and postoperative delayed vicious circle. For a long time acute dilatation of the stomach has been regarded as the result of a localized perigastroduodenal peritonitis. The authors classify with this type of postoperative peritonitis certain chronic syndromes of vicious circle coming on between the seventh and the tenth day after operation and characterized by chronic vomiting, bilious vomiting, or mixed intestinal and bilious vomiting.

In several such cases in which a second operation was done a subacute localized submesocolic peritonitis was found. Late vicious circle must arise from late stenosing adhesions about the duodenum, the stoma, or the efferent or afferent loops of the small intestine.

The authors report the case of a woman who, after a gastro-enterostomy, had severe vomiting and a fever up to 38 degrees C. The vomiting continued for ten days. At a second operation a band of mesentery across the stomach was released. The vomiting then ceased.

A case of the late type was that of a man who ran a fever of 39 degrees C for several days after a gastro-enterostomy and a year later began to have bilious vomiting. A second operation revealed adhesions from the mesocolon which had blocked and dilated the duodenum. Duodenojejunosomy resulted in a cure.

As an immediate postoperative complication there is rapid dilatation of the duodenum. When the peritonitis is rapidly spreading with reddening of the serous surface this results in early death from intoxication. When in cases of more attenuated peritonitis the gastric dilatation develops much later, and especially when the vicious circle is chronic, operation reveals an organizing peritonitis with membrane and stenosing adhesions around the duodenum, the stoma, or the jejunal loops. Removal

of the adhesions will effect a cure. These newly formed peritoneal adhesions must come from infection in the field of operation.

In the search for the source of the infection, the operative technique should receive first consideration. In the early days of gastro-enterostomy vicious circle was quite frequent, but today, with the perfected technique, it should be very exceptional. The operative manipulation may provoke an irritative peritonitis and the opening of the stomach and bowel may permit direct infection of the peritoneum.

Gastric ulcer seems to be associated with a true gastritis. Most gastro-enterostomies are done near the antrum. The wall near the antrum is very liable to be infected and most ulcers are situated there. Unfavorable sequelæ occur most frequently after gastro-enterostomy. Gastropyloroplasty is free from them as in pyloric resection the zone of gastritis is usually within the resected portion and the incision is made through normal tissue.

The authors do not apply this direct infection theory to the formation of peptic gastroduodenal ulcer. Jejunal ulcer they believe with Chiari, is merely a septic ulcer.

In one of their cases they found at the end of ten months an ulcer of the stoma of the gastro-enterostomy, marked infiltration of the mesocolon, the stomach and the jejunum around the stoma, and enlargement of the lymph nodes in the mesentery. Microscopic examination of the ulcer of the posterior lip of the gastro-enterostomy showed typical subacute diffuse inflammation. A culture from a lymph node yielded staphylococci and a culture from the ulcer showed both staphylococci and streptococci.

They believe therefore that these ulcers are caused by including a part of the inflamed gastric wall, and that the infection is not confined to the new opening but spreads along the efferent jejunal wall. They do not believe that unabsorbable suture material has much to do with the development of ulcer unless it is used in septic tissue, under which circumstances it may become a factor. The stomach clamp applied to a septic tissue may cause ulcer as the result of induced ischæmia and the intraparietal effusion of blood. The use of hæmostats and forceps in the mucosa may also favor ulceration if the tissues are septic.

The theory that the acid formed by the pyloric portion of the stomach causes renewed ulceration, a theory which has led to many resections of the stomach by German surgeons, may be quite wrong inasmuch as the resection of the pyloric portion may remove all of the infected stomach wall. Certainly jejunal ulcer is avoided by gastric resection.

The fact that jejunal ulcer may occur after pyloric exclusion with gastro-enterostomy is explainable. Operations on jejunal ulcers have a high mortality, probably because they are performed on septic tissue.

KELLOGG SPEED, M D

**Ascoli M** The Changes in the Gastric Chemistry After Resection of the Stomach (*Le modificazioni del chimismo gastrico dopo le resezioni dello stomaco*) *Polidun* Rome 1926 XVIII sez chir 117

The substances which ordinarily neutralize the gastric acidity are the pancreatic juice and the bile. After a Billroth I resection bile can enter the stomach only through the new pylorus during regurgitation. After a Billroth II operation all substances entering the duodenum are passed into the stomach by way of the jejunum but according to some investigators their quantity may not be quite sufficient to neutralize the gastric acid.

In experimental studies Katzenstein found that after gastro enterostomy performed by different methods bile and pancreatic juice at first flowed constantly into the stomach but later the flow was governed by the activity of digestion. He concluded that the constant lowering of the gastric acidity is due in part to the alkaline substance pouring in from the duodenum and in part to the decrease in the production of hydrochloric acid.

Other investigators believe that the pancreatic secretion is depressed to the same degree as the gastric secretion. Ascoli has constantly found hypochloric acid and anacidity. The amount of free hydrochloric acid was usually zero and the total acidity varied between zero and 10 per cent. Usually also there was a diminution in the pancreatic juice. Ascoli studied eighteen patients, seventeen of whom had a gastric or duodenal ulcer and one an epithelioma of the pylorus. The operations performed were the Polya-Balfour resection in seven (including the case of epithelioma) resection by the Billroth I method in five, midgastric sleeve resection in five and cuneiform excision of the ulcer in one. Except in the case of ulcer excision chemical examination was made in all cases up to twenty five days after the operation.

In the cases treated by the Billroth I operation from 10 to 60 c cm was obtained on aspiration in those treated by the Polya-Balfour operation from 15 to 330 c cm and those in which sleeve resections were done from 0 to 30 c cm. Accordingly there was no paralysis of secretion. After the Billroth I operation and sleeve resections there was always evidence of free hydrochloric acid but after the Polya-Balfour resections there was a considerable decrease in total acidity and in all except three cases absence of free hydrochloric acid. In three cases a trace of free hydrochloric acid was found. These facts are explained by the lack of regurgitation of pancreatic juice.

The regurgitation of bile also varied. In only one of the seven cases subjected to a Polya resection was bile always present in the stomach. In those treated by sleeve resection it was always wanting. Of the cases in which a Billroth I resection was done bile was found twice. After Polya resections the stomach emptied itself of food in from sixty to seventy five minutes.

The author's findings are summarized as follows:

1. The Polya operation was followed by a lowering of the total acidity and almost complete achlorhydria probably caused by the loss of a certain amount of secreting mucosal surface, the entrance into the stomach of alkaline duodenal juices as shown by the presence of bile pigment, and increased rapidity in the emptying of the stomach which decreases the stimulus to the formation of gastric secretion.

2. After sleeve resections no notable changes were found. There was no change in the function of the pylorus.

3. After the Billroth I operation two types of results were noted depending on whether or not there was regurgitation of bile and pancreatic juice.

KELLOGG SPEED MD

**Case J T** Diverticula of the Small Intestine Other Than Meckel's Diverticulum *Bull Battle Creek Sanit & Hosp Clin* Battle Creek Michigan 1926 XI 87

Case reviews the findings in 6847 complete barium meal studies. There were eighty five cases of duodenal diverticula, four cases of jejunal diverticula and one case of diverticula in the jejunum and ileum.

Duodenal diverticula vary in size from that of a pea to that of a hen's egg and are usually located in the second portion of the duodenum. They occur most frequently in females. Their emptying time is greatly prolonged. The large sacs contain no muscularis. The submucosa which is thickened consists of loose connective tissue richly supplied with blood vessels. The diverticula are usually surrounded by adhesion. The sacs are sometimes intimately adherent to the surrounding pancreatic tissue and their excision may be difficult especially if they have undergone pathological changes.

The diagnosis depends entirely on the roentgen findings. A special fluoroscopic technique is described. A diverticulum is suggested by a spherical shadow near or within the curve of the duodenal shadow which is independent of the latter but bears a definite relationship to it and persists for hours or days after the clearing of the stomach. Usually there is no tenderness at the site of the shadow.

Most diverticula are funnel shaped. If hand manipulation can move a diverticulum or express its contents the sac is usually ventral to the pancreas and can be resected.

Diverticula in themselves may not cause any trouble but as they are often associated with ulcer of the duodenum or disease of the gall bladder or pancreas or may become the sites of inflammation their removal should be considered when they are discovered in the course of an operation on the duodenum or gall bladder. Diverticula with a very prolonged retention time should probably be removed. When surgical treatment is not indicated or cannot be carried out hygienic care of the intestinal tract and the administration of large doses of barium sulphate are advisable. HERMAN H. HUBER MD

Saraceni F, Antonucci, C and Celiberti, A  
 X Ray Visualization of the Duodenum by the  
 Introduction of an Opaque Fluid Through  
 the Einhorn Tube (La indagine radiologica del  
 duodeno mediante introduzione di liquido opaco  
 attraverso la sonda di Einhorn) *Polichin*, Rome  
 19 6 xxiii sez chir 50

The authors report six cases in which an X ray study of the duodenum was made by the introduction of an opaque fluid through an Einhorn tube. One of the subjects was an entirely normal person, the others were suffering from duodenal ulcer or periduodenitis. They were prepared as for the ordinary gastric examination. The tube was introduced without difficulty, and because the duodenum is really a dorsal organ, the X ray examination was made with the patient in the ventrodorsal position. The stopping point of the olive tip is very important. If the tip is too high there may be a back flow of the fluid through the pylorus, while if it is too low, the filling of the bulb, the most important part of the duodenum, will be unequal and incomplete.

After the introduction of from 50 to 100 c cm of the barium preparation, the X ray examination is made immediately in order that the entrance of the barium into the jejunum may not obscure the picture. During the examination the patient holds his breath. Forceful injection from a syringe does not cause discomfort even when a lesion is present. An aqueous preparation of barium sulphate is used as the only preparation passes out more quickly. It must not be so thick that it will block the tube.

When the preparation is injected with mild pressure at first, it is stopped at the olive point by an annular spasm at that point, but in a short time it fills the duodenum rapidly in an antiperistaltic direction toward the duodenal bulb, expressing practically all air that is present.

If the filling of the bulb is massive, the upper border is normally regular and cup shaped. In the dorsoventral position it is seen that the duodenal bulb is situated in the vertical axis of the descending portion of the duodenum. The contours of the bulb and the upper part of the descending portion are clear cut, while those of the lower transverse portion are finely dentated. The caliber of the lower half of the descending portion is much larger than that of the upper portion. The opaque preparation renders visible all parts of the bulb and the descending portion a few moments after its introduction. No compression is necessary.

KELLOGG SPEED, M D

Halpert B. The Arteriommesenteric Occlusion of the Duodenum. An Anatomical Study. *Bull Johns Hopkins Hosp* Balt 1926 xxxviii 409

Halpert reports a case of arteriommesenteric occlusion of the duodenum and by means of a drawing shows the topographical relationships of the duodenum, the left renal vein, and the superior mesenteric artery.

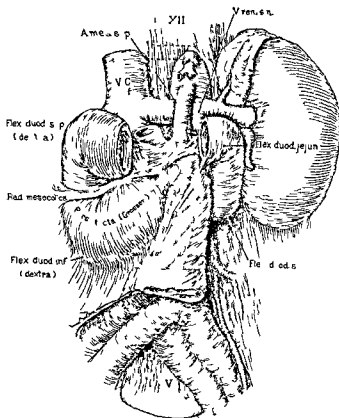


Fig. 1 Drawing from different stages in the dissection of the specimen, showing the topographical relationships of the duodenum the left renal vein and the superior mesenteric artery. The flexura duodenojejunalis is shifted downward in order to show the vena renalis sinistra in the angle between the aorta and the superior mesenteric artery.

The occlusion is usually caused by a fold of the mesentery belonging to the small intestine, which is displaced into the minor pelvis. In the case reported the duodenum was compressed between a mesenteric fold and the aorta or vertebral column. Up to the point where the fold crossed the duodenum, the gut was found to be distended, beyond, it was collapsed and emptied.

This condition is apt to occur especially in cases of peritoneal abnormalities. In the author's case, fusion of the ventral and dorsal layers failed to take place along the tænia omentalis of the transverse colon. The transverse colon was therefore lower in the abdominal cavity than normal and the loops of small intestine shifted down into the pelvis so that the mesentery formed a fold across the duodenum.

The treatment for such cases is duodenojejunosomy (Barker Staveland operation).

A displaced cæcum is not apt to exert sufficient tension on the mesentery of the small intestine to produce an obstruction of the duodenum, but it does so on the mesocolon if the right half of the colon has a mesocolon and is freely movable. This type of an occlusion is termed "arteriommesenteric." For its relief, Bloodgood recommends resection of the cæcum or the right colon, and Wilkie a colopexy.

HERMAN H. HUBER, M D

**Draper J W** The Pathogenic Colon *Ann Surg*  
1926 lxxxiii 790

In adolescents who suddenly develop epilepsy or a functional psychosis a toxic form of cerebral cellular disorder is to be found. Recent study has shown that many epileptic and psychotic patients are suffering from a hereditary chronic intestinal invalidism giving rise to intra abdominal defects of the colon and omentum.

Slight congenital cerebral abnormalities may cause symptoms only when they are complicated by the toxins of focal infection, the sources of which are demonstrable and will yield to surgical and medical therapeutics.

The relief of neuromental symptoms in a large percentage of 164 patients after colectomy, indicated to the author a connection between the toxic factors and psychoneuroses. **EARL G GARSIDE M D**

**Dukes C** Simple Tumors of the Large Intestine and Their Relation to Cancer *Bril J Surg*  
1926 xiii 720

Dukes attacks the problem of the relationship of simple tumors to cancer of the large intestine from three points of view (1) the development and structure of the simple adenoma (2) the association of simple tumors with malignant tumors (3) the intimate structure of early adenocarcinomata of the rectum and colon.

Four stages are distinguished in the development of adenomata. The first is epithelial hyperplasia with deepening of the crypts and lengthening of the villi, the second bending of the muscularis mucosae branching of the original villi, the formation of new villi and impairment of marginal growth, the third increased bending of the muscularis mucosae and further branching of the villi leading to an increase in the secreting area and the fourth the formation of a stalk, and the development of similar secondary growths leading almost inevitably to the formation of cystic spaces.

Dukes finds adenomata in 75 per cent of all cases of cancer of the rectum and sigmoid. He has found them within a radius of 3 in. of the cancer and believes that if a search were made for them further from the cancer they would be discovered even more frequently. He concludes that well developed adenomata are present in the portion of bowel between the caecum and sigmoid in only about 10 per cent of the population, whereas small tumors are almost invariably present in the mucosa surrounding a cancer of the rectum or sigmoid.

The structure of adenomatata associated with cancer is essentially similar to that of simple adenomata. The tumors consist of a central stroma of connective tissue with dilated blood vessels and are covered by a thick layer of columnar epithelial cells. The author is of the opinion that the simple tumors precede the formation of the cancer.

The structure of early adenocarcinomata resembles that of adenomata. Dukes believes that the malignant changes occur in the cells between the

adjacent tumors which because of their position become restricted in growth and irritated. He gives the stages in the development of carcinoma of the rectum as (1) spotty epithelial proliferation in an extensive area of mucosa, (2) the formation in this area of a group of adenomata (3) infolding of the mucosa between the adenomata and (4) irritation of the cells between the primary and secondary tumors with subsequent malignant degeneration.

**HERMAN H HUBER M D**

## LIVER, GALL BLADDER PANCREAS AND SPLEEN

**McCoy C C** and **Graham R S** Cholecystography in Operative Cases *J Am M Ass*  
1926 lxxxvi 1899

In the series of twenty six cases reviewed in this article sodium tetra iodoephthalene was given intravenously and a roentgenographic examination was made twelve hours later.

In five cases a diagnosis of cholelithiasis was made with cholecystography and stones were found at operation. Of thirteen cases in which a diagnosis of biliary tract disease was made gross evidence of disease was found. While in two of these cases there was no evidence of disease at operation microscopic examination of the removed gall bladder revealed a mild chronic cholecystitis in one and cholangitis in the other. Of eight cases in which the gall bladder was believed to be normal it appeared normal at operation in seven and was therefore not removed. The cholecystographic findings were accordingly confirmed in 96 per cent of the cases. Of 212 cases collected from the literature the cholecystographic diagnosis following the intravenous injection of the dye was confirmed in 91 per cent.

**HERMAN H HUBER M D**

**Graham E A** **Cole W H** **Copher G H** and **Moore S** Cholecystography The Use of Phenoltetra Iodophthalene *J Am M Ass*  
1926 lxxxvi 1899

Phenoltetra iodoephthalene is superior to its isomer tetra iodoephthalene. It produces shadows with smaller doses (0.04 gm. per kilo in 30 ccm. of distilled water) it is followed by fewer and less severe toxic reactions. It is associated with less danger of thrombophlebitis and it is more readily excreted through the liver. Four hours after the administration of the drug excellent gall bladder shadows are obtained. Oral administration gives less accurate findings.

**HERMAN H HUBER M D**

**Bazin A T** Infections of the Biliary Tract A Stock Taking of Diagnosis and Treatment *Canadian M Ass J* 1926 xvi 632

The recognition of early mild symptoms of biliary tract disease is essential for the prevention of acute crises. The gall bladder is the first part of the biliary tract to be attacked by an infection, the extrahepatic and intrahepatic ducts being involved

secondarily. The channels of infection to the gall bladder are the systemic circulation, the lymph drainage, the portal circulation, and the ducts from the duodenum. Acute cholecystitis may attack a normal gall bladder, but is usually superimposed upon a chronic cholecystitis.

The symptoms of biliary tract disease often date from an infectious illness such as typhoid fever or influenza or from a pregnancy complicated by pylelitis. They are those of chronic dyspepsia. In addition to discomfort in the epigastrium and right hypochondrium there may be pain referred to the back or the scapular region on either side. In some cases there may be only a 'sore feeling' in the epigastrium or flatulent distention which is relieved by the eructation of gas.

The attacks occur after the ingestion of food. The distress is greater after a heavy meal or dietary indiscretions. There are no periods of relief as in gastric ulcer, and the distress is not relieved by the recumbent position as is that caused by gastroparesis.

Of the physical signs the most valuable are Murphy's sign and Mayo Robson's point. The Graham Cole X-ray test is of value in many cases but not in all. Bile is to be found in the urine only for a few days, hence an icteroid sclera is an early sign. The van den Bergh test for bilirubin in the blood is of value, but this also is positive for only a short time. In 75 per cent of the cases there is a hyperglycaemia due to concurrent pancreatic damage.

Early operation prevents obstruction of the common duct, septic cholangitis, and pancreatitis. The author's rules for treatment are the following:

1. Remove all other foci of infection.
2. In infections limited to the gall bladder cholecystectomy without drainage should be done.
3. When the infection is more diffuse, cholecystectomy with drainage of the common duct should be done.
4. If the symptoms point to gall bladder disease cholecystectomy should be done even if the gall bladder appears normal.

LARL G. GARDNER M.D.

McMaster P. D., and Elman R. Studies on Urobilin Physiology and Pathology VI. The Relation of Biliary Infections to the Genesis and Excretion of Urobilin. *J. Exper. Med.*, 1926, **41**, 753.

To determine whether during biliary obstruction or upon injury to the liver the urobilin formed in an infected biliary tract can be absorbed therefrom and lead to the appearance of the pigment in the urine, the authors carried out experiments in which they infected intubated and previously sterile duct systems with urobilin producing bacteria. The findings showed that after infection of the biliary tract urobilinuria is produced following biliary obstruction and following liver damage also that marked urobilinuria fails to appear when chronic infection has caused pathological changes in the gall bladder.

McMaster and Elman designate such urobilinuria as 'cholangitic,' to distinguish it from the urobilinuria having its origin in pigment absorbed from the intestine. The fact that cholangitic urobilinuria is more pronounced in animals with a normal gall bladder leads the authors to conclude that there is an active absorption of urobilin from the normal gall bladder and the bile ducts and that there is no evidence to indicate that urobilin is formed by the action of the liver parenchyma.

HERMAN H. HUBER M.D.

Collinson G. A. and Fowweather F. S. An Explanation of the Two Forms of Bilirubin Demonstrated by the van den Bergh Reaction. *Brit. M. J.* 1926, **1**, 1081.

Van den Bergh assumed that there are two forms of bilirubin: the one reacting directly with the sulphuric acid reagent and present typically in cases of obstructive jaundice, and the other reacting to an appreciable extent only in the presence of alcohol and after precipitation of protein and present typically in cases of hæmolytic jaundice.

The authors attempted to ascertain the chemical mechanism underlying these different reactions since such knowledge would help in explaining the production of jaundice. The modern theory of jaundice assumes that bilirubin of the hæmolytic form is produced by the cells of the reticulo endothelial system in the liver and in its passage through the liver cells to the bile capillaries becomes converted to the obstructive form in which it is found in the bile.

The experimental evidence produced by the authors is very complex and cannot be described briefly. They conclude from it that the chemical nature of bilirubin lends support to the modern theory of jaundice.

CYRIL J. GLASPEL M.D.

Lecene P. and Moutonguet P. Remarks on the Types of Mild Cholecystitis Termed Strawberry Gall Bladder (Remarques sur les formes de cholecystite légère appelées vésicule fraise). *Presse méd. Par.* 1926, **XXXIV**, 49.

Grossly the so-called 'strawberry gall bladder' is characterized by the presence of small yellow bodies about the size of a pinhead which project from the mucosa into the lumen. Microscopically these bodies are submucous accumulations of polyhedral cells laden with lipid material. The lipid material has been shown to form needle-like crystals and to have a melting point considerably lower than that of cholesterol. Its color reactions and some of its optical properties indicate that it is a cholesterol complex probably a cholesterol ester. Schaefer has shown that the lipid content of a strawberry gall bladder is twice that of the normal organ.

The significance of these small cell masses has been disputed. It has been suggested that they may serve as nuclei for the formation of stones, but the stages of such a transition have never been clearly demonstrated. Pollicard attributed them to excessive

absorption of lipoids by the gall bladder epithelium probably as the result of stasis. Because of their frequent association with a frank infectious cholecystitis with or without stones the authors believe they develop as a result of infection. The lipid filled cells are regarded as leucocytes which have undergone fatty degenerative changes. Similar cells have been observed in the muscularis and serosa as well as beneath the mucosa. Fatty deposits may also be seen at times within the epithelial cells themselves.

Further evidence in support of the infectious origin of these lesions is afforded by the demonstration of similar granules in the mucosa of chronically inflamed fallopian tubes. Clinical evidences of infection are often demonstrable and anatomical changes such as thickening of the submucous layer as the result of the deposit of fat inflammation of the lymph nodes about the hilum of the liver infiltration of the submucosa by inflammatory cells and adenoma like hyperplasia of the mucosa are frequently present. Usually the bile itself is sterile, probably because of its bactericidal powers.

If a strawberry gall bladder is associated with the presence of stones cholecystectomy is indicated. When it is uncomplicated the authors perform a cholecystostomy as they believe the condition is essentially a wide spread biliary infection requiring chiefly adequate drainage.

LAWRENCE JACQUES M D

**Judd E S. Cholecystitis with Associated Problems.** *Illinois M J* 1926 xlix 460

Disease of the gall bladder is not only recognized more often than formerly but is more common. The cause of cholecystitis is being investigated. The author reports a series of 100 cases in which the gall bladder was studied bacteriologically immediately after its excision. The findings were positive in only twenty nine although contamination was inevitable at times. Five of twenty two specimens of strawberry gall bladder gave positive cultures. The bile was bacteriologically positive in seven of the 100 cases. Gall stones which were found in 50 per cent yielded positive cultures in five. The bacillus typhosus and bacillus paratyphosus were not encountered although there was a history of typhoid fever in twenty one cases. In the one case of cholesterosis with thick dark bile both the gall bladder and the bile were sterile.

When the gall bladder appears normal at operation it is not always justifiable to conclude that the diagnosis was wrong. Removal of the organ may dissipate the symptoms and prove that unrecognized disease is present. At times therefore the diagnosis must be made on the clinical manifestations alone dangerous as this practice is in principle. According to the author's experience removal of the gall bladder when the complaints are typical will bring relief even when no disease can be recognized in the viscous. Judd believes that the seat of the disease in such cases may be in the

pancreas or liver and that cholecystectomy produces a cure indirectly. If the symptoms are of the chronic dyspeptic type the chance of cure by cholecystostomy is not great.

Judd emphasizes the importance of good exposure and explains his method of obtaining it. He discusses ligation drainage and the care necessitated by the presence of jaundice.

**Miller J L. The Medical Aspects of Gall Bladder Disease.** *Illinois M J* 1926 xlix 451  
**Herbst W P. Some Phases of Biliary Surgery.** *Illinois M J* 1926 xlix 455

MILLER emphasizes the fact that the treatment of gall bladder disease is surgical but the diagnosis must usually be made by the internist in co operation with the laboratory worker and the roentgenologist. The diagnosis is not easy. Careful history taking and questioning are necessary. It must be borne in mind that a syndrome resembling that of gall bladder disease may be caused by conditions such as syphilis of the liver spastic colitis intercostal neuritis due to osteoarthritis of the spine, appendicitis, Dietl's crisis and central pneumonia of the right lower lobe.

If lues is excluded periodical attacks of characteristic pain followed by jaundice and localized tenderness warrant the conclusion that surgery is indicated. In atypical cases the van den Bergh test is of great aid. Severe epigastric pain without fever but with a leucocytosis is suggestive of gall bladder disease. When the pain passes through to the right scapula or laterally around the right thorax gall bladder involvement is suggested. The occurrence of pain after jolting suggests biliary or renal disease. It is the milder type of gall bladder disease without severe pain that is the most difficult to diagnose. In this type gastric symptoms predominate and skill is necessary to distinguish them from digestive pains. It is well to bear in mind that in these cases periodicity of discomfort and failure to respond to ulcer management are rather common characteristics. The gastric analysis rarely throws more light on the nature of the condition. The roentgenologist's findings should be carefully weighed but the diagnosis should not be based upon his report alone. The history of the disease is more important.

In Miller's opinion the only treatment is surgical. Medical therapy is of no avail.

HERBST discusses certain phases of biliary disease and surgery. After reviewing briefly the physiology of the liver and gall bladder and the formation of bilirubin, he proceeds to classify jaundice into three types—the hemolytic, the obstructive and a type caused by inability of the liver parenchyma to secrete and excrete because of acute infectious and pathological impairment of the liver cells.

He then reviews the clinical tests in detail the levulose the van den Bergh, the Fouchet the Rosenthal the Muhlengracht the glycuronic acid the blood urea and the blood cholesterol tests and

**cholecystography** Those of the most value are the Rosenthal, the van den Bergh and the blood urea tests and cholecystography.

The van den Bergh test serves to differentiate between hemolytic jaundice and the two other types. When the daily amount of serum bilirubin is noted, an increase in the amount of pigment indicates an increasing surgical risk. When the findings of the van den Bergh test remain above normal in cases of drainage of the common duct the drainage should not be discontinued.

The Rosenthal test is of most importance in suspected liver disease without jaundice.

Cholecystography is 100 per cent accurate only in cholelithiasis. It should be used primarily in cases in which a reasonably satisfactory clinical diagnosis is impossible.

In cases of gall stones, surgery is almost always indicated unless the patient is a poor risk. In cholecystitis without stones, it is indicated if there is no response to medical treatment within a year. The hazards of a longer delay are the possible development of pancreatitis, hepatitis, biliary cirrhosis, an acute surgical condition, an ulcer, or myocarditis. Jaundice always increases the surgical risk but as the result of the use of the van den Bergh test, calcium therapy, transfusions and the administration of glucose, it has lost many of its dangers.

In cirrhosis of the liver with ascites, the intravenous or intramuscular injection of doses of 1 or 2 c cm of a 10 per cent solution of novasurol at intervals of three or four days and the administration of ammonium chloride in capsules to the amount of 10 gm daily have been of great benefit.

HERMAN H. HUBER, M.D.

**Muller G. P. Certain Experiences with Gall Bladder Surgery.** *Med J & Rec* 1926 cxxii 446

Gall bladder disease is most common in fat women who have borne children. Of the author's 128 patients with disease of the gall bladder, 82.5 per cent were women. The average age at which the patients came to operation was 43 years. In most cases nearly twenty years elapse between the onset of the condition and the operation. During this time the patient suffers from so-called nervous indigestion, flatulent dyspepsia and intestinal intoxication.

In the diagnosis of pericholecystic adhesions, the X ray helps materially. High fixation of the duodenum, fixation of the hepatic flexure, and displacement of the pylorus to the right are significant. Moore has reported a correct diagnosis of gall bladder disease by cholecystography in 92.5 per cent of cases. Gastric analyses have not given much information in gall bladder disease. Liver function tests are of value as indicating the working of the extra hepatic passages.

In the author's cases of acute suppurative cholecystitis (uneteeen), the symptoms were those of

acute inflammation, such as tenderness, rigidity, fever and leucocytosis. The gall bladder was usually found swollen and intensely congested.

The author discusses the advisability of immediate operation in these cases and whether it is better surgery to do a cholecystostomy under local anesthesia than a more radical operation under inhalation anesthesia. In the cases of fat patients, local anesthesia has been found difficult when a cholecystectomy is to be performed, and the anesthetic gases without some ether are unsatisfactory. When only cholecystotomy is done a second operation may be necessary, but may be deferred until the patient is less critically ill.

In the group of cases of acute cholecystitis with common duct obstruction, the mortality was 40 per cent. Cholecystectomy was performed in every instance.

Of the author's seventy-eight cases of chronic cholecystitis, twenty four were cases of simple cholecystitis and fifty four were cases of calculous cholecystitis. Cholecystectomy was performed seventy three times and cholecystostomy five times without a death. In cases of non calculous disease cholecystectomy is indicated. In cases with involvement of the pancreas internal drainage (cholecystogastrostomy) is better than external drainage, and if the gall bladder is extensively diseased it is probable that the cystic duct is occluded.

In the author's cases of chronic cholecystitis with common duct occlusion the mortality was 19.2 per cent. In this type of case, pre-operative preparation is most important. Water, glucose, calcium chloride and digitalis should be given. Ether anesthesia is contra indicated.

The end results in the cases reviewed were as follows:

Condition	Traced	Well	Benefited	Not benefited
Acute cholecystitis				
Cholecystectomy	13	12	1	0
Cholecystostomy	4	3	1	0
Acute cholecystitis and duct stone	3	3	0	0
Chronic cholecystitis				
Without stone	23	16	6	1
With stone	45	38	5	2
Common duct stone	18	13	3	2

HOWARD A. MCKNIGHT, M.D.

**Gibson C. L. Aids to Cholecystectomy.** *Iowa Surg* 1926 lxxvii 618

Gibson enumerates the following aids to cholecystectomy:

1. Good exposure by an incision that will allow direct drainage if it is necessary and is least apt to favor hernia.

2. Shelling out of the gall bladder from its peritoneal coat so that at no point will the surface or substance of the liver be involved.

3. Sealing of the cystic duct by peritoneal blockade.



4 Closure of the wound without drainage in suitable cases to eliminate postoperative adhesions or render them minimal

5 Careful hæmostasis particularly with regard to the cystic artery

The incision the method of effecting hæmostasis the removal of the gall bladder from above or below and other steps in the operation are discussed in more detail In the author's cases in which closure was effected without drainage convalescence was rapid and comfortable and the operation has never been followed by hernia

EMIL C ROBISHEK M D

St John F B The Late Result of a Biliary Fistula with Implantation of the Fistulous Tract into the Stomach *Ann Surg* 1926 LXXIII 855

The author reports a case in which a biliary fistula followed cholecystectomy for an acute exacerbation of chronic cholecystitis All of the bile drained through the fistula for eighty six days At a second operation the distal portion of the sinus tract was carefully dissected from the surrounding tissues and the tubular structure thus obtained implanted into the prepyloric portion of the stomach Today twenty-one months after the operation the patient is free from symptoms and jaundice and is able to eat an unrestricted diet EARL G GARSIDE M D

Hale K A Study of the Accessory Pancreas *Ann Surg* 1926 LXXIII 774

The author reviews the literature on the accessory pancreas and reports a case

An accessory pancreas is most frequently located in the wall of the stomach duodenum or jejunum where it is probably developed by the migration of a primordial pancreatic cell into the dorsal mesogastrium

An aberrant pancreas is subject to many pathological changes Chief of these are chronic interstitial inflammation and acute pancreatitis

In Hale's case pyloric stenosis had been caused The patient a child age 6 weeks died following a Rammstedt operation Sections showed an accessory pancreas in the thickened pyloric wall There was no evidence of ducts from the aberrant pancreas Hale concludes that the hypertrophy found was due to irritation of the musculature by the pancreatic secretion EARL G GARSIDE M D

Courboulès Ruptures of the Pancreas in Abdominal Injuries (A propos des ruptures du pancréas dans les traumatismes de l'abdomen) *Lyon chir* 1926 XXIII 91

Contusions or ruptures of the pancreas either alone or associated with other visceral lesions are not so unusual as was formerly believed judging from the number of cases reported in recent years If the pancreas alone is injured there may be no special symptoms at the time of the accident and a diagnosis cannot be made until later when a post-traumatic pseudocyst of the pancreas develops

In a case of football injury seen by the author there was at first only a slight contracture of the abdomen which was temporary and did not justify exploratory laparotomy After several weeks rapid emaciation and the development of a tumor led to operation and the discovery of a post-traumatic cyst of the pancreas After the operation there was a pancreatic fistula

The author reports also a case of traumatic hernia of the stomach with internal hæmorrhage rupture of the pancreas and pancreatic fistula due to a fall In such cases a pseudocyst does not develop but a pancreatic fistula is formed at once The liquid which flows from the injured gland does not become encysted in the deep tissues as it is evacuated through the operative wound especially if drainage or a tampon for deep hæmorrhage is necessary

But whether the lesion is solitary or associated whether the original accident leads to immediate or to late operation the rupture of the pancreas will sooner or later be followed by the formation of a pancreatic fistula In cases of pseudocyst in which marsupialization is the only possible treatment the fistula will be secondary whereas in cases such as the author's second one it will be primary In either case the fistula renders possible a laboratory study of the function of the pancreas the composition of the pancreatic juice and the action of the juice when it is not activated by bile intestinal juice or bacteria AUDREY G MORGAN M D

Capecchi E The Importance of the Spleen in Resistance to Infection as Indicated by a Case of Severe Puerperal Sepsis in a Woman Who Had Recently Been Splenectomized (Sulla importanza della milza nella resistenza alle infezioni desunta da un caso di sepsi puerperale grave in donna di recente splenectomizzata) *Clin ostet* 1926 XXVIII 119

A great deal of experimental work has been done to determine whether the spleen exercises a protective function against infection but the results have been rather contradictory The author reports a clinical case which seems to have a decided bearing on the subject

The patient a 28 year-old woman with no family or personal history of any importance was suddenly taken with severe symptoms of internal hæmorrhage Operation was performed for ruptured extra uterine pregnancy but a normal pregnancy in the third or fourth month was found and the tubes were normal The hæmorrhage had its origin in a rupture of the spleen The spleen was extirpated As there was no history of trauma it is probable that the spleen was undergoing regression from a lymphatic condition and therefore was ruptured easily by some slight exertion Five and a half months after the operation labor pains began but there was marked uterine inertia and it was necessary to deliver the child with forceps On the third day the lochia became foetid and the patient suffered from a high fever, chills, intense headache diarrhoea and

vomiting. The fever remained high and the uterus large and painful for twenty days. Thereafter the fever declined gradually. The patient was discharged well on the forty-fourth day. A blood culture on the sixteenth day showed a pure culture of non-haemolytic, Gram-positive streptococci in short chains. Two young dogs were injected intravenously with 2 c cm of a live culture of the streptococci and two other dogs were injected after having been splenectomized. All four survived.

The author concludes from this case and the results of the injections that the spleen is not essential to the defense against infection. Twenty days after the patient had completely recovered from the puerperal infection she had fever and pain in the left iliac fossa for fifteen days and a hard painful swelling of the left adnexa was found. A cure was obtained by medical treatment in about a month in spite of the absence of the spleen.

AUDREY G MORGAN M D

### MISCELLANEOUS

**De Martel, T.** The Contra Indications to Surgery in Acute Abdominal Affections (Les contre indications chirurgicales dans les affections abdominales aiguës) *Bull et mem Soc nat de chir* 1926 lu 237

Operation should not be performed in the acute stage of abdominal diseases. It is difficult to tell however, just when the acute inflammation is over. Some surgeons follow the rule of operating after the temperature has remained normal for fifteen days but this is not always correct. De Martel has found that a normal differential leucocyte count is the most reliable guide. In a normal person the proportion of polymorphonuclears is surprisingly constant. Even a slight polymorphonucleosis means that an inflammation is still in the acute stage.

In several cases in which De Martel operated when the temperature had been normal for several weeks but a marked polymorphonucleosis persisted the results were very serious whereas when the differential leucocyte count was normal at the time of operation the results were always good even when only a short time had elapsed since the decline of the fever. In cases with an abnormal differential count in which he opened the abdomen he found serious inflammation; he therefore closed the abdomen without continuing the operation (appendectomy) and delayed its completion until the count became normal. At the second laparotomy he found the lesions healed.

AUDREY G MORGAN M D

**Ryle J A.** Visceral Pain and Referred Pain *Lancet* 19 6 cxx 895

There have been two main theories with regard to visceral pain. According to the first which is based on the work of Lennander and has Mackenzie as its most vigorous protagonist, pain is not felt in the viscera but is referred to the somatic tissues supplied by the segment of the cord which supplies

the viscera involved. According to the second theory, which is accepted by Ross and Hurst and perhaps the majority of physicians, visceral disease may be accompanied by referred somatic pain, but the viscera themselves are capable of feeling pain when they are subjected to certain stimuli.

Ryle endeavors to support the following hypotheses:

1 That there is a true visceral pain felt by the viscus.

2 That visceral pain is due to an abnormal increase in the tension of the muscular element of the wall of the viscus, this increased tension resulting from contraction or the failure of the muscle fiber to relax adequately in the presence of increased intravisceral pressure.

3 That visceral pain occurring alone or dissociable from attendant somatic pains may be accurately localized by the patient.

4 That though referred somatic pain and tenderness, e.g., viscerosensory reflexes and the associated visceromotor reflexes, may accompany a severe visceral crisis of mechanical origin, they more frequently express an inflammatory lesion of the viscus.

5 That, when persistent, they invariably express organic disease of the viscus of an inflammatory type.

Except for the sensations of precordial fullness and retrosternal oppression experienced during violent effort or emotion the heart and aorta may be said to be insensitive under physiological conditions. In the case of the stomach we recognize the elements of appetite and hunger sensations, and the sensations of fullness or repletion. These have been clearly traced to the tonic and peristaltic activity of the stomach wall. The work of Carlson and Hurst seems to indicate that they depend on the state of tension in the gastric muscle fiber. Of the appendix and gall bladder we are quite unaware in health. Of the intestine we are aware whenever there is local distention with flatus. The rectum clearly appreciates states of fullness at times of urgency amounting to pain and most of us will agree that its sensations are deeply and not superficially situated. The sensation of the desire to micturate is felt in the urethra and also in the bladder when the latter is over distended. All of these physiological sensations are related to increasing pressure on the walls of the viscus and are relieved by evacuation. Menstrual pains are felt locally but are frequently accompanied by a more superficial sacral pain. With regard to these it is worthy of note that during menstruation a state of congestion akin to the effects of inflammation is present in addition to increased muscle tension. No equivalent congestion is present during the normal functional activity of other hollow viscera.

Observations support the contention that if the hollow viscera are sensitive, it is not their serous or mucous coats but their muscular coats which appreciate sensations. Those who contend that the

viscera are insensitive seem to have paid too little regard to the fact that special organs respond only to special stimuli. Thus the eye appreciates light and not sound the skin appreciates touch temperature and traumatic pains all of which are physiologically essential for it to appreciate. The skeletal muscles appreciate position and tension the strength of opposing forces and in states of extreme tension pain but they are not sensitive to cutting pricking or burning. There is no reason for the viscera to appreciate tactile or thermal stimuli but it is vitally necessary for them to appreciate states of fullness or emptiness.

By analogy it seems reasonable to insist that the plain muscle of the hollow viscera is endowed with the same sensibility positive and negative as the skeletal muscles in other words that the visceral sense is muscle sense. The sensations of fullness or emptiness are therefore parallel with the sensations of posture and tension in a limb. Pain (whether in skeletal or plain muscle) results when tension is greatly increased. The one common factor present in all cases of visceral pain is an increase in intra-visceral pressure and muscular tension. The relieving factor whether it be the passage of a gall stone in biliary colic the ingestion of food in hunger pain or the peripheral vasodilatation following the administration of amyl nitrite in angina pectoris is invariably a factor which reduces intravisceral pressure.

Ordinary stomach ache and intestinal colic seem to be felt internally. Renal and biliary colic seem to be deep to the body wall.

In describing anginal pain the patient places his clenched hand to the sternum as though to indicate a median or aortic origin for his pain and perhaps incidentally to suggest its gripping character. He indicates cardiac pain by applying the flat of the hand to the submammary region. The pain of gastric ulcer is indicated with the tips of two or three fingers applied to the mid epigastric point or occasionally just to the left of this point the pain of duodenal ulcer by a similar demonstration frequently just to the right of the midline. In renal colic the hand grasps the loin usually with the fingers over the back and the thumb in front as though to suggest that the pain is rather more posterior than anterior and deeply situated in the region of the kidney. The localization of pain in disease of the gall bladder and appendix (when there is no confusion due to associated inflammation or gastric and intestinal disturbance) is remarkably accurate. The position of a calculus impacted in the ureter may also be accurately shown when distraction by concurrent renal colic or other symptoms is not too influential. Intestinal pains are less easily localized because intestinal colic is not confined to one spot as is the case with biliary or renal colic. Pains in the small intestine are usually felt around the navel and colonic pains between the navel and the symphysis pubis. However when obstruction occurs at a more or less fixed point such as the

hepatic splenic or sigmoid flexure the localization of intestinal pain is commonly precise.

The reflected phenomena of visceral disease are best demonstrated in very severe visceral pain or inflammatory disease. Examples of the former are the arm pain in angina the subscapular pain of cholelithiasis and the testicular pain in uterine colic. Examples of the latter are the cutaneous hyperalgesia and muscular guarding found in appendicitis or in relation to a chronic gastric ulcer. These reflected phenomena rarely accompany visceral disease of a functional kind they are generally associated with local organic changes. In the majority of fatal cases of angina pectoris there is found some disease of the first part of the aorta or coronary vessels and we know that although the sensation of retrosternal oppression can be reproduced in health by vigorous exercise upon a frosty morning the arm pain is not so reproduced and since the vessels are capable of relaxation local distress is never agonizing. It is upon observations of this kind that we may base the conclusion that visceral pain expresses a perturbation of visceral function (which may or may not be due to local organic disease) while the somatic phenomena generally express a structural lesion of the wall of the viscus.

Mackenzie has come to the conclusion that the only known stimulus that produces pain in tissues supplied only the autonomic nerves is contraction of muscle and increased tension.

Cardiac pain is felt in the submammary zone and is sometimes accompanied by referred tenderness in the precordial area. The arguments weigh heavily in favor of an aortic or coronary or at any rate an arterial origin for the anginal pain. In support of this hypothesis are (1) the sternal situation of the pain over the aorta or the base of the heart and not in the precordial area (2) its occurrence as an early symptom of syphilitic aortitis (3) its association with aortic but not with other valvular forms of disease and its association with thoracic aneurysm (4) its absence in the majority of cases of myocardial disease and heart failure, (5) its propagation by actions which cause a rise in intra-arterial pressure and its relief by vasodilatation (6) its not infrequent association with hyperpnea before the development of cardiac failure (7) its spontaneous relief when the heart muscle fails so that an adequate pressure for the production of the pain is no longer maintained (8) its segmental reference which as Wenckebach has argued on the basis of Head's work does not correspond accurately to the segments supplying the heart and (9) its close resemblance to other forms of arterial pain.

It seems reasonable to assume that angina pectoris is due to an increase in tension in the wall of the aorta or coronary vessels or both depending not upon spasm but upon a failure of relaxation in the face of the increasing pressures and demands which accompany increased cardiac work. Recent observations have shown that status anginosus (or sus

tained anginal pain) is due generally and perhaps always to thrombosis or embolism of the coronary arteries  
MORRIS H. KAHN, M.D.

Fifield, L. R., and Love, R. J. McN. Subphrenic Abscess *Brit J Surg*, 1926 xiii 683

This study was based on seventy eight consecutive cases of subphrenic abscess. In discussing the anatomy, the authors describe the six subphrenic spaces where abscess is likely to occur: the right and left extraperitoneal, and the right and left anterior and posterior intraperitoneal spaces. Abscesses are formed most commonly in the right posterior intraperitoneal (subhepatic) space.

The usual etiological factors are appendicitis, the perforation of a gastric or duodenal ulcer, hepatic suppuration, and suppurative in the biliary passages. The infection occurs through wounds, by the gravitation of exudate from peritonitis, by the hematogenous route, by direct extensions and by lymphatic spread. The most common infective organism is the bacillus coli communis.

The diagnosis is based upon the findings of physical examination of the abdomen and chest, roentgen ray examination, needle exploration, and the blood cell count. In the differential diagnosis, pyelophlebitis, empyema, liver abscess, perinephric infection, aortic aneurism, pancreatic cysts, and renal tumors must be considered.

The prophylaxis consists in the adoption of Fowler's position (especially in appendicitis with infection) and the establishment of efficient drainage in cases with a primary infective focus. The treatment consists in incision and posterior drainage. In order to prevent pleural infection and obtain dependent drainage, resection of a rib as low as possible should be done. Most commonly the tenth rib is resected.  
HERMAN H. HUBER, M.D.

Herrick, F. C. Pyelography in the Diagnosis of Tumors of the Flank *Ann Surg* 1926, lxxii 634

The author discusses only flank masses of unusual origin or course. The differentiation of intra-

peritoneal from retroperitoneal masses, of extrarenal (retroperitoneal) from intrarenal masses, and of intrarenal masses by pyelography was based on the following factors:

1 The position of the kidney: the normal being with the pelvis opposite the first or second intervertebral spaces. Variations are explained by hypermobility due to one of the known causes, displacement by a tumor, or traction by an inflammatory process.

2 Disturbance of the normal longitudinal renal axis. It is accepted that this axis extends upward and backward at an angle of 15 degrees to the vertical.

3 Disturbance of the normal anteroposterior axis or rotation of the kidney on its vessels as an axis.

4 Distortion of one or more calyces. This is caused most commonly by pressure on the kidney from an extrarenal mass. The entire pelvis and all of the calyces are present, but are elongated and distorted.

5 Absence of a part or all of one or more calyces. This is brought about most commonly by an intrarenal mass, an abscess or a tumor, by which a calyx is destroyed or obliterated so that the solution does not enter it.

6 Fragmentation of the pelvis or calyces which constitutes a typical picture of tumor close to the true renal pelvis.

The differentiation between an intrarenal and extrarenal tumor may be facilitated by placing a coin over the palpated mass before making the pyelogram. It is aided also by variations in the renal axis and a study of course of the ureter and its relation to the mass.

A tumor outside of the kidney is more likely to change the renal axis and distort the renal pelvis or calyces than an intrarenal tumor, whereas a tumor within the kidney is more likely to obliterate or cause fragmentation of the calyces than an extrarenal tumor.

Twelve cases are reported in detail.

EMIL C. ROBITSHEK, M.D.

# GYNECOLOGY

## UTERUS

**Bullard E. A.** A Study of the End Results of Operation for Uterine Prolapse at the Woman's Hospital 1915-1925. *Am J Obst & Gynec* 1926 21: 613

Of the 361 cases of uterine prolapse reviewed by the author about 95 per cent were cured by vaginal plastic surgery.

The vaginal plastic work combined with ligament shortening from above is satisfactory perhaps in cases of slight prolapse but undoubtedly the careful fascial reconstruction by way of the vagina was responsible for the successful results.

The majority of gynecologists of today have long ceased to attempt to cure descent of the uterus by any form of suspension or fixation by the abdominal route. The *sine qua non* of the operative treatment of prolapse is careful reconstruction of the various planes of the pelvic fascia that have become attenuated, overstretched or torn.

In none of the cases reviewed by Bullard was the Watkins operation followed by enterocele but bladder symptoms occurred in a considerable number of them.

The Mayo operation was extremely satisfactory except that it was followed occasionally by an enterocele.

The vaginal hysterectomy by Bissell's technique was most satisfactory but unless this operation is perfectly done and perhaps even then it may be followed occasionally by enterocele.

In the discussion of this report STUDDIFORD said that every type of operation fails in a certain percentage of cases. An operation fails usually because it is not adapted to the requirements of the particular case in which it is performed. This means that the case was not properly studied with regard to the causative factors or the condition to be corrected.

The Watkins operation has a distinct indication in a certain type of case—a case in which haste is possibly indicated such as that of an elderly woman with prolapse—but for a successful result there must be very little prolapse of the posterior segment, the sacro uterine ligaments must still be holding. When an enterocele follows the Watkins procedure the operation was poorly performed.

WARD stated that Bullard's report emphasizes the importance of an efficient follow up system and full records.

HALSTED said that the third most common symptom in cases of prolapse is incontinence of urine and that at operation on these cases special effort should be made to cure the incontinence.

E. L. CORNELL, M.D.

**Aschner B.** Conservative and Operative Treatment of Uterine Hemorrhage (Konservative und operative Therapie der Gebärmutterblutungen). *Wien med Wchnschr* 1926 LXXVI: 188.

The author states that like roentgen or radium castration the extirpation or supravaginal amputation of the uterus with or without conservation of the ovaries in cases of hemorrhage of fibroid or ovarian origin may have very severe after-effects. These sequelae which are manifestations of an auto-intoxication or retention toxicosis are caused by the artificially produced menopause since besides the internal secretion of the ovaries the excretory function of the uterus is of considerable importance for the general well being of the female.

They include obesity, plethora, metabolic disturbances, a tendency toward acute and chronic inflammations, cardiac and vascular phenomena, nervous and mental disturbances and diseases of the skeletal and muscle systems, the special sense organs, the skin, the endocrine glands and the viscera.

Aschner believes that the indications for the treatment of hemorrhages should be revised. For hemorrhages due to myomata surgical intervention should be as conservative as possible, only enucleation or resection with the preservation of normal menstruation comes up for consideration. In hemorrhages of ovarian origin the cause is often a chronic hyperæmia of the pelvic organs due to atony of the stomach, chronic constipation or a sedentary life. In some cases however these hemorrhages may result from general plethora, cardiac decompensation or disturbances of metabolism and internal secretion or may be caused by toxins, particularly metabolic waste products.

By the proper use of venesection, hydrotherapy, catharsis and various medicaments the author has been able to avoid radical operation or roentgen castration in cases of hemorrhages of purely metrorrhagic and the menopause.

VOY WEINZIERL (C)

**Ferraciu D.** The Experimental Production of Endometriomata (Sulla produzione sperimentale di endometriomi). *Arch Ital di Gynec* 1926 11: 35.

Recently there have been numerous discussions on the subject of certain cystic structures of the female genital tract which contain blood or blood pigment and are lined with an epithelium presenting the same histological picture as that of the endometrium.

At first these new growths were thought to be due to embryonic inclusions or metaplasia of epithelium but Sampson came to the conclusion that they are caused by the autotransplantation of epithelial cells or islands of mucous membrane through the

tube into the peritoneal cavity where they become implanted and buried in the tissues near the mouth of the tube or on the ovary, undergo cystic degeneration, and participate in menstruation. This hypothesis would explain the chocolate colored or tarry contents of the cysts. Sampson believes also that the cysts may burst during a menstrual period and pour their contents, consisting of blood and exfoliated epithelium, into the peritoneal cavity, giving rise to new disseminations in the pouch of Douglas. The epithelial lining of these cysts reacts histologically to menstruation, pregnancy, and the menopause in the same way as the mucous membrane of the uterus.

With a view to determining whether Sampson's theory is correct, the author performed experiments on dogs and rabbits. In a first series of experiments he made an incision in the body of the uterus, scraped the mucosa from the inner surface of the organ with the tip of a knife blade, divided it into minute fragments, and scattered them over the internal genital organs and the abdominal cavity. In a second series he removed the embryos from pregnant dogs and scattered the fragments of the decidua in the pelvis and abdomen. In a third series he resected a part of a horn of the uterus, cut it into fine bits with the scissors and scattered the bits on the pelvic organs and in the peritoneal cavity.

The first two series of experiments were negative, but in the third series cysts of various sizes were formed in a short time. In some cases the cysts were implanted on the abdominal organs and in others were scattered over the parietal peritoneum. Only one cyst was formed on an ovary, but in dogs and rabbits the ovaries are high up in the abdominal cavity beside the vertebral column and it would be difficult for the fragments to reach them if they were not placed there. The internal walls of these cysts presented an epithelium very similar to that of the uterine mucosa. AUDREY C. MORGAN M.D.

**Proust, R., Maffet L. and Collez R.** Cancer of the Cervix Treated with Radium at a Distance (Cancer du col de l'utérus traité par la curie thérapie à distance a foyers localisés) *Bull. et men. Soc. nat. de chir.* 1926 lxv 84

The vaginal application of radium in the treatment of cancer of the cervix gives excellent results but is insufficient against the spread of the disease by way of the broad ligaments. Several years ago the authors recommended the application of radium at the base of the broad ligaments by laparotomy but they have now abandoned this method in favor of radiotherapy at a distance.

As surface applications of radium of sufficient penetration caused injury to the skin the attempt was made to increase the depth action by bringing the radium about 12 cm from the skin. Three masses of 50 mgm of radium each were used and protected by lead sheets so that the skin area irradiated by each would not be affected by the two

others. With this protection and by cross firing, the tissues at a depth of 10 cm received 60 per cent of the dose received by the skin at the portal of entrance.

The authors report the case of a 60 year old woman who entered the hospital with an inoperable cancer of the cervix which had spread into the left broad ligament. The patient had had hæmorrhages and had passed clots. At the time of her admission she had a foul smelling discharge but no pain. She had not lost weight and her general condition was good. The diagnosis was confirmed by biopsy.

Between the skin and the radium were placed a layer of wax 1 cm thick and a layer of gauze 1 cm thick. The three 50 mgm sources of radium were placed 8 cm from the skin on August 14, 1925, and left on until September 15. There was no difficulty and no local reaction although the radium remained in place for twenty two of the twenty four hours of each day. At examination on October 25 the cervix was still slightly fixed in the cul de sac but the infiltration in the broad ligament was gone and the body of the uterus was mobile. On the surface of the abdominal skin two of the radiated zones were very apparent. Around the periphery of the central and right ports of entrance there was some central desquamation and pigmentation. The left port was much less apparent. The speculum revealed slight ulceration of the lower cervical lip. A vaginal application of radium was then made.

When the patient was examined in January, 1926, she was found to be in good condition. The cul de sac was normal, the cervix small, and the fundus of the vagina slightly retracted. When the cervix was examined with the speculum it appeared to be completely cicatrized. KELLOGG SPEED M.D.

## MISCELLANEOUS

**Noyes I. H.** Pelvic Inflammation in Women. *Boston M. & S. J.* 1916 ccxiv 1025

**Champlin J. Jr.** The Use of Milk Injections in Pelvic Inflammation. *Boston M. & S. J.* 1926 ccxiv 1029

**Magill W. H.** Thermotherapy in the Treatment of Pelvic Inflammation. *Boston M. & S. J.* 1926 ccxiv 1031

NOYES makes the generalization that pelvic inflammation of varying types is the cause of much semi invalidism, a large percentage of the cases of sterility, and a great many of the destructive pelvic operations done on women during the child bearing period. He reports on 4,400 women admitted to the Rhode Island Hospital, Providence, in the years 1910 to 1915 (18.6 per cent) of whom had some form of pelvic inflammation. Five hundred and seventy eight were operated upon and 320 (55.3 per cent) were rendered sterile.

The mucous membrane of the vagina contains few if any glands and is not easily infected. The cervical canal is a striking contrast with its mucous glands from which pathogenic organisms are

difficult to eradicate. In most cases of persistent juvenile vaginitis an infected cervix is probably the chronic focus. Probably no portion of the body is so frequently diseased as the cervix of the parous woman during the child bearing period. Persistent chronic infection of the cervix is almost certain to result in infection of the posterior parametrium and this may cause backache, dysmenorrhœa or menorrhagia.

In the genital tract the gonococcus travels upward by direct progression along mucous surfaces more readily than by the blood stream or lymphatics. In this respect it differs from the streptococcus. The endometrium seems more or less immune to direct attack by the gonococcus. In the fallopian tubes however the gonococcus readily gains a foothold. In the latter as well as the cervix the infection may be limited to the mucous lining but eventually in most cases the involvement becomes extensive with serious damage to the tube wall.

The author stresses the clinical significance rather than the pathological status of the gonorrhœal infection. He discusses the frequency of tubal involvement in cervical infection, the probability of resolution of the tubal infection under medical management, the incidence of pregnancy after resolution and the incidence of postpartum infection in cases of gonorrhœal cervicitis coincident with or occurring during pregnancy. Of thirty three patients with positive smears, seventeen showed a positive urethra and cervix, eleven a positive urethra only and five a positive cervix only. After observation ranging from one to twenty-one months, thirteen (30 per cent) developed evidence of more extensive intrapelvic inflammation.

Of another series of twelve pregnant patients, all of whom acquired their infection at the time of or shortly after the establishment of pregnancy, none developed any marked puerperal sepsis.

The bacteria most frequently concerned in puerperal sepsis are the streptococcus, staphylococcus and colon bacillus. The infection spreads chiefly by way of the lymphatics or blood stream.

For the treatment of pelvic inflammation, CHAMPLIN recommends the more general use of non specific protein therapy, since animal experimentation and practical medicine have shown the stimulating effect of such therapy on the body cells, especially those weakened by infection. The most forceful efforts made to throw off infection are made by the affected cells themselves. Under the stimulus of foreign proteins given subcutaneously, intramuscularly or intravenously, the protoplasm develops phagocytic properties, the toxins are neutralized by the fresh production of antibodies and ferments, the local metabolism is intensified and the pus is absorbed.

The use of milk in non specific protein therapy was originated by Schmidt of Iraque in 1916. In America it was inaugurated by Gellhorn of St. Louis.

As a rule, ordinary whole milk is used. It is prepared in various ways. Centrifugalized fat free

milk causes less local irritation and less marked general and focal reactions. The methods and technique of the preparation of the milk vary with different men and clinics. Gellhorn uses milk sterilized by boiling or by pasteurization at 80 degrees C for one hour on six successive days. When ready for use, 10 c cm of milk is placed in a sterile test tube and boiled for ten minutes in a water bath. Five cubic centimeters of milk are injected into the gluteal muscles and the injections are repeated at intervals of from three to five days. The amount injected is gradually increased to 10 c cm by the third injection. The average number of injections is six.

The first injection is followed after from six to eight hours by a general reaction characterized by chills, fever, headache and general malaise.

Cardiac decompensation, diabetes, and alcoholism are contra indications to such therapy.

The principal field of protein therapy in gynecology is in the treatment of pelvic infections, particularly those of gonorrhœal origin. Such infections of the bladder, uterus and tubes respond to it well, but those of the cervix and ovary do not.

MAGILL states that until the advent of diathermy, which is the local production of heat by the penetration of the tissues with an electrical current of high frequency, the treatment of pelvic infection with heat was limited practically to the vaginal douche. Titus uses an anterior electrode over the abdomen and a posterior electrode over the sacral region. The Corbus Chapman method with vaginal and rectal electrodes and a thermometer attachment is an improved procedure for the localization and concentration of heat in the pelvic tissues. By the use of this electrical agency, heat can be generated to tolerance usually between 105 and 110 degrees F for medical purposes, or still higher for tissue destruction in surgical diathermy.

Corbus and O'Connor state that gonococci are killed at a temperature between 104 and 108 degrees F in forty minutes. If the organisms are not killed it is probable that at least their virulence is attenuated.

According to Magill, the local application of heat is contra indicated in acute pelvic inflammation, particularly in postpartum and postabortion infections.

CHARLES F. DUBOIS, M.D.

**Pribram, E.** The Cultural Method of Testing the Virulence of Bacteria from the Cervix and Vagina and Its Significance with Regard to Postoperative Morbidity and Mortality (Zur kulturellen Virulenzprüfung von Cervix und Scheidenkeimen und ihre Bedeutung fuer die postoperative Morbidity und Mortality). *Zentralbl. f. Gynick.* 1926, 1: 137.

As the result of the findings of virulence tests in 105 gynecological and obstetrical cases, the author regards as incorrect the opinion held at Bumm's clinic that a positive reaction to Philipp's virulence test is in itself sufficient to contra indicate radical

operation for an otherwise operable carcinoma and casarean section. He concludes, moreover, that it is impossible to predict the postoperative course from an increase in the bacteria in the blood within the first three or four hours after operation.

He was unable to corroborate the statement of Philipp that hæmolytic streptococci which are very virulent in the patient's blood will increase in the blood of another person in the same manner as in the patient's blood. In Pribram's opinion, it is impossible positively to predict the clinical course of an infection from any laboratory test alone and the most that may be expected from laboratory tests are suggestions for treatment. WOLFF (G)

**Fuss E M The Virulence Test in Gynecology and Obstetrics** (*Die Virulenzprobe in der Gynaekologie und Geburtshilfe*) *Zentralbl f Gynaek*, 1926 1 140

From the use of the virulence test of Ruge and Philipp in 516 gynecological and obstetrical cases the author concludes that the demonstration of the presence of virulent bacteria by this test is a warning, since such virulent bacteria if given the opportunity to multiply, will probably cause a severe infection. The demonstration of the presence of avirulent bacteria by this test usually indicates the absence of severe infection.

Occasionally, however, severe infections occur in association with apparently avirulent bacteria. In such cases the virulence test fails because the infecting organisms are almost exclusively anaerobes. Therefore when the advisability of operation is to be determined from the findings of the virulence test, control tests for the presence of anaerobes, especially gas formers, should be made. WOLFF (G)

**Møller W The Effect and Risks of Radium Treatment in Benign Gynecological Complaints** *Acta obst et gynec Scand*, 19 5 14 2 2

It is thought that roentgen therapy arrests endometrial bleeding by destroying the ovarian follicles and their derivatives. Radium is believed to have a similar action but to have also a direct effect on

the uterine mucosa. In a study of the uteri and ovaries of thirty-two women treated with radium (twenty-five of whom had a benign condition), the author found no evidence of any destructive change in the endometrium which might be ascribed to the radium. He therefore concludes that the direct action of radium upon the uterus is negligible. Its action on the ovaries appeared to consist in an initial destruction and a reduction or arrest of the growth of the follicles. In every case, however, a certain number of follicles remained unchanged. Møller ascribes to the latter the return of the menses after radium treatment.

In reducing the size of a fibroid which is the cause of bleeding, irradiation acts directly upon the tumor tissue and not through the ovaries. This conclusion is supported by the findings in cases reported by Meyer and by those in fifty irradiated myomata examined by the author.

Contra indications to the use of radium in cases of fibroids are the presence of infection and of submucous myomata. Of 103 women studied by the author, fifteen showed signs of infection following radium treatment and four showed severe infective sequelæ, the relation of which to the treatment was too obvious to be denied. The latter four required operation, and two of them died. Of seven patients with submucous myomata who were treated with radium, five developed signs of infection.

A causal relationship between irradiation and the subsequent development of cancer has not been established, but the author has collected thirty cases from the literature and knows of six others in which cancer developed after radiotherapy. He therefore advises careful watching of cases in which irregular bleeding occurs following the amenorrhœa due to irradiation.

Women who have been treated with radium should be strongly advised against becoming pregnant during the time immediately preceding the amenorrhœa; as abortion is frequent in such cases and the offspring resulting from the fertilization of an ovum from an irradiated growing follicle may be inferior.

GOODRICH C SCHAUFFELER M D



# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Groené O On Chorea Gravidarum and Its Etiology *Acta obst et gynec Scand* 19 5 14 203

Until he saw the two cases reported in this article the author did not share the opinion that chorea gravidarum is a formidable condition. The first case was that of a 22 year-old primigravida in the seventh month of pregnancy who at the age of 17 years had had an attack of chorea minor. The second case was that of a multipara also 22 years of age who had never been affected with chorea. In both cases the condition had a very acute onset and severe course with high fever and in both the pregnancy was interrupted by vaginal caesarean section. In one case there was an eruption somewhat resembling that of measles. The first patient died and the second recovered.

Chorea gravidarum especially in its severe form is a rare disease. It is most common between the ages of 16 and 25 years. Its incidence is 4.3 per cent in the first three months of pregnancy, 2.8 per cent in the second three months and 1.0 per cent in the third three months. It has a marked tendency to recur in subsequent pregnancies.

The author favors the theory that it is of an infectious nature. Its severity in pregnancy is due merely to the decrease in the patient's general resistance. Not infrequently there is a history of chorea minor. The theory of infection is supported by the constant presence of a fever, occasional septic eruptions and effusions into synovial cavities.

The mortality ranges from 17 to 30 per cent while that of chorea minor ranges from 2 to 5 per cent. The prognosis is extremely unfavorable if from the beginning there has been a high temperature or a psychotic element. In most cases the onset of labor has a favorable effect. In serious cases labor should be induced. However the beneficial effect of interference is due not to cure of the disease but merely to restoration of the normal resistance.

(OODRICH C SCHAUFFLER M D)

Forssner H Sundell C and Kjellin G The Relationship Between Pregnancy and Tuberculosis *Acta obst et gynec Scand* 1925 14 210

The harmful influence of pregnancy on tuberculosis has not yet been definitely established. Cases in which pregnancy has been terminated cannot be cited as evidence. It has been shown that flare ups occurring during pregnancy may be merely coincidental and that sudden unexplained flare ups independent of pregnancy may be benefited or arrested during and after pregnancy. Only cases in which pregnancy has been allowed to exert its supposed harmful effect to term can be used as evidence.

The authors review the cases of 359 women with a definite diagnosis of tuberculosis who became pregnant and were kept under observation for a period of two years after delivery. They studied also a control series of 259 women of the same social status (working classes) and age (between 17 and 45 years) who were under observation for two years and were not pregnant either during this time or in the preceding year.

According to Turban's classification the cases may be divided into three groups viz (1) those in which the condition is benefited or remains stationary, (2) those in which it becomes aggravated and (3) those in which it proves fatal. From the author's findings it appears at first glance that the non-pregnant women got along considerably better than the pregnant women but it is pointed out that when the former group were admitted to the hospital they had serious complaints referable to the lungs whereas many of those who were pregnant had no subjective symptoms and hence the latter group included a larger number of quiescent cases.

According to a corrected table which shows only the cases in which bacilli were demonstrated during the two year period of observation there was little or no difference in the progress of the two groups when the condition was mild (Turban's Type 1) but it is impossible to deny that pregnancy may exert a harmful influence on the advanced cases (Turban's Types 2 and 3). The findings in the early cases are of greater importance than those in the others because it is the mild cases in which the decision for or against intervention is most difficult. In advanced cases intervention is almost never advisable.

The babies of the tuberculous mothers weighed about the same as those of non-tuberculous women. They were never born tuberculous. Subsequent tuberculosis in such infants is acquired by contact after birth. When the infants are taken from their mothers at birth their chance of avoiding the disease is about doubled.

As a result of their study the authors advise against artificial interruption of the pregnancy.

(OODRICH C SCHAUFFLER M D)

McIlroy A L Pulmonary Tuberculosis Complicated by Pregnancy *Proc Roy Soc Med Lond* 1926 19 Sect Obst & Gynec 61

McIlroy's statistics indicate that pregnancy is a very serious complication of pulmonary tuberculosis.

Primigravidae are particularly susceptible to pulmonary changes. A definite lung tuberculosis is manifested by a slight cough or general malaise but this is often overlooked by the physician being ascribed to the pregnancy. The idea that preg-

nancy improves the general condition of a tuberculous patient is fallacious, the ovum may act as a parasite draining the mother's vitality.

There is considerable controversy regarding the end results of the induction of abortion. The advisability of this procedure depends upon the conditions in the particular case. Abortion should never be induced after the twentieth week of pregnancy. The best method is tent insertion.

When the child is carried to term and the mother's tuberculosis is slight and unaffected by nursing it is advisable to give the baby breast feedings for three months at least. Babies born of tuberculous mothers are usually healthy and unaffected by the mother's milk.

It is essential that the mother be given constantly the care usually given for tuberculosis and that the baby be isolated to prevent its infection from the mother.

Further pregnancies should be avoided until two years after all symptoms have subsided. Contraceptives may be advised or temporary sterilization may be employed. For the latter, the X-ray is preferable to operative measures.

MAGNUS P. URNES M.D.

**Hofbauer J.** The Defensive Mechanism of the Parametrium During Pregnancy and Labor. *Bull. Johns Hopkins Hosp.* Balt., 1926 xxxviii 255.

The author states that during pregnancy a phagocytic tissue consisting of monocytes and clasmotocytes, makes its appearance in the base of the broad ligament and is intensified under the stress of prolonged labor and particularly by the presence of infection. The development of this tissue from resting wandering cells and adventitial cells can be demonstrated.

The appearance of this phagocytic tissue in the parametrium must be regarded as a biological reaction against infection. It favors the development of local immunity in a region exposed to infection, and must be of service in doing away with debris and bacteria.

The mode of its production is not yet clear but it may have important implications with regard to auto-infection and low cervical section.

The development of lymphoid tissue within the walls of lymphatics in the parametrium is probably an additional defensive mechanism.

ROLAND S. CRON M.D.

**Browne F. J.** The Etiology of Accidental Hemorrhage and Placental Infarction. An Experimental Investigation. *Brit. M. J.* 1926 i 683.

Accidental hemorrhage has been generally ascribed to toxæmia of pregnancy but some obstetricians hold that the toxæmia is due to the hemorrhage.

From a study of pregnant rabbits in which an acute nephritis was produced by injecting oxalates and certain bacteria, the author found that nephritis

is an important condition predisposing to hemorrhage. The most important hemorrhage-producing bacteria seem to be the bacillus pyocyaneus and bacillus coli.

Placental infarction and accidental hemorrhage are the end results of a toxæmia produced by acute nephritis.

When only organisms or their toxins were injected no hemorrhage occurred.

An acute oxalate nephritis leads to marked urea retention but even when the urea concentration is at its highest the urine may be free from albumin.

MAGNUS P. URNES M.D.

**Fitzgibbon G.** A Revised Conception of Ante partum Accidental Hemorrhage. *Proc. Roy. Soc. Med. Lond.* 1916 vii Sect. Obst. and Gynec. 80.

This article reports a study of cases of antepartum hemorrhage seen during a period of six years at the Rotunda Hospital, Dublin.

From his findings, Fitzgibbon concludes that he cannot accept the common explanation that in the revealed type of hemorrhage the uterine muscle is healthy and therefore resists distention by blood pouring into the uterine cavity while in the concealed type the muscle distends because it is diseased. He has found labor to be the common outcome of both types. The labor is usually rapid and the uterus acts perfectly both during and after delivery regardless of whether the hemorrhage is revealed or concealed.

While Fitzgibbon accepts the view that accidental hemorrhage is due to toxæmia, he discovered that although the other toxæmic diseases occur twice as frequently in primiparæ as in multiparæ at least 85 per cent of the accidental hemorrhages studied occurred in multiparæ.

A close relation was noted between the vitality of the fetus and the degree of albuminuria, but there was no relation between these and the type of the accidental hemorrhage. In no case in which the uterus was tense or painful was a living infant born. On the other hand seventeen viable and six dead fetuses were delivered in twenty-three cases in which the uterus was normal to palpation. Histological examination of the uteri showed separation of the muscle fibers, invasion of the interstitial tissue by blood, and intramuscular hemorrhages about the periphery of the small veins which was most pronounced in the outer layer of the uterus. There was no degeneration of the muscle fibers.

The author divides accidental hemorrhages into two types: (1) those due to a simple and truly accidental ablation of part of the placenta, and (2) those resulting from a toxæmic condition due to a hematoma or apoplexy of the uterine wall which involves the placental site but did not originate there. Ninety per cent of the patients with the second type are multiparæ. In the author's opinion, the cause is chronic interstitial nephritis. When there is external bleeding the blood is always dark.

and never clots it is not whole blood but hæmorrhagic serum expressed from coagula retained in the uterus. If the fetus is alive the patient is treated palliatively the symptoms being met as they appear. In cases of persistent bleeding labor may be induced by puncture of the membranes. It is then allowed to follow its own course. Plugging of the vagina has been completely abandoned.

The author contrasts a series of confinements occurring in the period from 1911 to 1919 during which time plugging of the vagina was the principal treatment and hysterectomy or cesarean section was occasionally substituted with a series of confinements occurring in the period from 1920 to 1925, during which time palliative measures were used.

ALBERT W. HOLMAN M.D.

**Stander H. J. and Peckham C. H. A Classification of the Toxæmias of the Latter Half of Pregnancy.** *Am J Obst & Gynec* 1926 xi 583

From a study of 120 cases the authors suggest the following classification of the late toxæmias of pregnancy: (1) eclampsia, (2) pre-eclampsia, (3) chronic nephritis complicating pregnancy, (4) eclampsia superimposed upon nephritis, and (5) the low reserve kidney.

Eclampsia is a fairly definite entity. Its usual signs are convulsions and coma, a relatively sudden marked increase in the blood pressure and the excretion of a large amount of albumin in the urine occurring during the last third of pregnancy particularly near term and followed by a complete return to normal at the end of the puerperium. Frequently the condition is associated also with an increase in the uric acid and sugar content of the blood, a low carbon dioxide combining power and the presence of a large amount of ammonia in the urine. All of these findings also disappear rapidly during the puerperium. Ophthalmoscopic examination may show detachment or edema of the retina but never any sign of albuminuric retinitis or the other changes which are so frequently associated with nephritis.

As there is no evidence that eclampsia *per se* does any permanent damage to the kidneys it is not to be considered a contra-indication to further pregnancies.

Pre-eclampsia seems to be a definite entity but differs from eclampsia only in being unassociated with convulsions or coma and of a milder character. The author's studies seem to indicate that this is probably the rarest variety of toxæmia of pregnancy its incidence not exceeding 5 per cent. If it becomes slightly worse the patient will develop convulsions unless the pregnancy is promptly terminated.

Chronic nephritis complicating pregnancy is progressive. Each subsequent pregnancy is associated with increasing renal impairment. The presence of chronic nephritis is evidenced by a high blood pressure persisting for two or three weeks after delivery. In such cases the diastolic level is of especial significance. Patients with chronic nephritis

are usually discharged with a diastolic pressure well over 90 and in addition about  $\frac{1}{2}$  gm of albumin in the urine.

In cases of low reserve kidney the last few months of pregnancy may show a moderate rise in the blood pressure usually about 150-90 and a relatively small amount of albumin in the urine ranging from a fraction of a gram to very slightly over 1 gm just before delivery. There may also be some edema. Very rarely, there is headache. By the end of the puerperium the blood pressure has returned to its normal level, the urine is free from albumin or contains only a faint trace of it and any edema that may have been present has disappeared. At no time are there any signs of a disturbance of the blood chemistry. The nitrogen partition in the urine is normal. Pregnancy does not injure this type of kidney.

E. L. CORNELL M.D.

**Miller C. J. Glucose and Insulin in the Toxæmias of Pregnancy.** *Am J Obst & Gynec* 1926 xi 753

For the last five years the author has been using glucose in the treatment of the toxæmias of pregnancy, and for the last several months has been employing it with insulin. The success of the method has induced him to rely upon conservative measures in handling such cases. Routine measures are of course employed also.

The proper administration of the glucose is of the utmost importance. Proctoclysis is unreliable, hypodermoclysis while better is not entirely satisfactory. The ideal method is intravenous infusion.

In the ordinary case Miller has been using a 5 per cent solution of glucose and giving one unit of insulin for every 3 gm of glucose until from ten to fifteen units have been given. It is safe to repeat the procedure.

At least forty cases of toxæmia and twenty cases of eclampsia have been treated with excellent results by his modification of the Stroganoff method combined with glucose. Since the recent addition of insulin to the method the results have been even better.

E. L. CORNELL M.D.

**Caudiere and Guérin Valmale. Maternofetal Blood Reactions (Réactions sanguines maternofœtales).** *Bull Soc d'obst et de gynéc de Par* 1926 xv 85

The authors report the results of a study of the reactions of the maternal and fetal blood which were made immediately after the birth. The fetal blood was taken from the umbilical cord and the maternal blood from a vein of the arm.

Fifteen women and their infants were studied. In eleven cases there was a normal pregnancy terminating in the normal delivery of a normal child. In nine cases the maternal serum was without effect on the fetal blood cells but in two it caused agglutination. The fact is emphasized that in at least two cases there was no eclampsia, albuminuria or other sign of a toxic condition. In ten cases the fetal serum was without effect on the maternal blood cells, but in one it caused agglutination. The

latter was not one of the two cases in which the maternal serum agglutinated the fetal blood

Eclampsia occurred in three of the fifteen cases. In one the maternal serum agglutinated the fetal blood, but the fetal blood did not agglutinate the maternal blood. In the two others neither serum caused agglutination.

In one case the maternal serum caused marked agglutination of the fetal blood and the fetal serum caused marked agglutination of the maternal blood. This was the case of a patient suffering from pulmonary tuberculosis.

The authors conclude from their observations that eclampsia is not due to the mixture of incompatible maternal and fetal blood.

SALVATORE DI PALMA M D

Westphal, U. 'Ten Years' Experience with Eclampsia (Zehn Jahre Eklampsie) *Ztschr f Geburtsh u Gynaek*, 1920, lxxiv, 626

In 22,809 deliveries occurring in the Hamburg Municipal Obstetrical Institute during the last ten years there were 189 cases of eclampsia. One hundred and fifty-four of the women with eclampsia were primiparæ. Thirteen were under 20 years of age, seventy-one between 20 and 25 years, fifty-two between 26 and 30 years, and fifty-three older than 30 years. In 138 cases the eclampsia occurred during the last months of pregnancy, and in thirty-two in the ninth month. Its earliest development was the fifth month. There was no apparent relationship between the weather and the eclampsia. Neither was it possible to establish a greater number of attacks on days with excessive moisture in the air than on clear days.

In the treatment of severe cases labor was induced as soon as possible, but in cases of moderate severity this was not done. When the dangerous symptoms persisted after venesection (with infusion of sodium chloride or glucose solution) and the use of chloral hydrate or, as has been the practice in recent years, the use of the sodium salt of luminal and magnesium sulphate, the uterus was immediately emptied.

In sixty-four cases delivery occurred spontaneously. In eighty-one the forceps were used. In fifteen, version and extraction were done. In twenty-six cases operative measures were necessary (transperitoneal section in twenty-three cases and craniotomy in two). The maternal mortality was 8.5 per cent. The fetal mortality was 20.6 per cent if all of the infants which died are included in the calculation, but if twelve infants whose body length was under 35 cm are excluded, it was only 14 per cent.

SCHLOSSMANN (G)

Rucker, M P. The Treatment of Eclampsia. *Virginia M Month* 1926 lvi, 97

The prophylaxis of eclampsia consists in careful observation of the patient, rest in bed, a carbohydrate diet, intestinal cleansing, and the forcing of fluids when the blood pressure rises. If there is no

improvement, interruption of the pregnancy should be considered.

In a follow up study of cases of toxæmia of pregnancy treated at the Johns Hopkins Hospital, Baltimore, it was found that in toxic cases in which the eclampsia was prevented the incidence of kidney impairment was higher than in those with eclampsia. This was due to the fact that the cases without convulsions were carried along in the interests of the child and the toxic agents therefore acted for longer periods of time.

The best obstetrical opinion is rapidly going over to conservative treatment. In an attempt to classify eclampsia clinically, the London Committee on Eclampsia of the Third British Congress of Obstetrics and Gynecology gave the following seven phenomena as signs of danger and any two as signifying a severe case: coma, a pulse rate of over 200, a temperature above 103 degrees F, a number of convulsions greater than ten, a urine that boils solid, absence of edema, and a blood pressure above 200 mm.

A table of results obtained in various London hospitals gives the mean mortality of induction of labor and spontaneous delivery as 9.6 per cent. This is the lowest mortality of the listed modes of delivery.

In the control of the convulsions morphine holds first place, the author favors large doses. He discusses also the administration of magnesium sulphate intravenously and intramuscularly. He advocates it to relieve convulsions and coma. The forcing of fluids and the administration of glucose are also important. Venesection is advocated especially for cases with pulmonary edema.

The after treatment consists in delivery as soon as the patient's condition warrants it, the tapering off of the treatment with bromides, chloral, and paraldehyde, and cautious additions to the diet. Pregnancy may be permitted after three years if there is no evidence of permanent kidney impairment.

ALBERT W HOLMAN, M D

## LABOR AND ITS COMPLICATIONS

Theobald G W. A Plea for Drastic Reform in the Teaching of Midwifery. *Proc Roy Soc Med Lond* 1926 xix Sect Obst and Gynec 94

Because of the high maternal mortality in England and Wales, the fact that a large number of women are permanently injured at parturition, and the fact that over one third of the 3,000 maternal deaths per year in these countries are due to sepsis, the author advocates a marked change in the teaching of obstetrics to physicians and midwives.

He has never known of fatal puerperal sepsis in a patient who had not been examined vaginally before delivery. Of thirty-five primiparæ and sixty-five multiparæ who were allowed to deliver themselves, the nurse standing at a distance from the bed (the "Garden of Eden" method), the perineum remained intact in eighteen of the former and sixty-two of the latter.

In 200 other cases the nurse prevented the head from being born too precipitately (the modified Garden of Eden method). Eighty of the patients in this group were primiparae and 120 were multiparae. The perineum remained intact in sixty three of the former and 116 of the latter.

Theobald suggests that nurses be forbidden to make vaginal examinations deliver breech presentations or control the fundus during the third stage. He recommends that the modified Garden of Eden method of delivery be adopted that binders be abolished that free drainage and purgation be obtained during the puerperium and that the student living in the maternity hospital spend less time watching operations he will never perform and a great deal more time watching normal labor.

ALBERT W. HOLMAN, M.D.

**Williams J. W. and Sun K. C.** A Statistical Study of the Incidence and Treatment of Labor Complicated by Contracted Pelvis in the Obstetrical Service of the Johns Hopkins Hospital from 1896 to 1924. *Am J Obst & Gynec* 1926 vi 735

From a review of the cases of contracted pelvis admitted to the obstetrical service of the Johns Hopkins Hospital from 1896 to 1924 the authors found that the usual types of contracted pelvis occur somewhat more than four times more frequently in negro women than in white women (37.31 and 8.06 per cent) while the incidence of funnel pelvis is the same in the white and colored races.

In white women the generally contracted pelvis is closely followed in frequency by the typical funnel pelvis while in colored women the generally contracted rachitic pelvis is second in order of frequency. Rickets plays an extraordinarily important part in the genesis of pelvic abnormality in the negro woman and an almost negligible part in such abnormalities in the white woman. Its incidence in the cases reviewed being 15.23 per cent in the colored women and 0.83 per cent in the white women. Under the influence of urban life the negro tends to degenerate physically.

With every additional half centimeter of contraction the colored woman has more spontaneous and fewer operative labors than the white woman. The simple flat pelvis is more serious to the white woman than the generally rachitic pelvis is to the colored woman. The white woman has fewer spontaneous and many more operative labors than the black woman.

The generally contracted rachitic pelvis is to be regarded as a manifestation of degeneration. That the child is involved in the process is evident from its smaller size. White women with a flat pelvis usually show no signs of physical degeneration frequently exceed the average in height and weight and have babies of more than average size.

Breech presentations occur approximately twice as frequently and transverse presentations three times as frequently in cases of contracted pelvis as in cases of normal pelvis.

In the cases reviewed by the authors the gross maternal mortality was 0.97 per cent and the net maternal mortality 0.44 per cent. The net fetal mortality was 3.54 per cent.

During the twenty-eight years covered by this study, the treatment of labor complicated by contracted pelvis has undergone many changes.

During the first period (from 1896 to 1905) the mortality from cesarean section was still relatively high and the operation was not resorted to until the patient had been subjected to the test of labor. Version and extraction with high forceps and late cesarean section were the operations most commonly employed with the result that both the fetal and the maternal mortality were relatively high.

In the second period (from 1905 to 1910) pubiotomy was introduced. While this procedure gave very satisfactory results so far as the mother was concerned the fetal mortality was high. It was therefore performed less and less frequently until finally its employment was limited to a single indication namely certain cases of funnel pelvis in young women in which it sometimes afforded a means not only of overcoming the dystocia but also of converting the contracted pelvis into a pelvis that was essentially normal. Even with this restriction no pubiotomy has been performed on the service since 1910.

The last period (from 1910 to 1924) was characterized chiefly by the greatest possible extension of prenatal care and a considerable increase in the employment of cesarean section.

The normal weight of the newborn having been set at 3,250 gm. it was found that the number of children which attained or exceeded that figure varied greatly in the two races as well as in the several types of pelvis. Practically one half of the white infants and two thirds of the colored infants fell below that limit a fact which explains why spontaneous labor is so much more frequent in the cases of colored women than in the cases of white women.

In all cases of generally contracted pelvis the children were small whereas in those of the simple flat and typical funnel varieties they were relatively large.

Women with simple flat and funnel pelvises are often large and present no manifest signs of physical degeneration. Therefore in many instances the abnormality will escape recognition unless routine pelvimetry is done and the clinical signs of disproportion are noted.

E. L. CORNELL, M.D.

**Guéniot and Suzor.** Rupture of the Uterus in a Case of Face Presentation. Hysterectomy (Rupture utérine à la suite d'une présentation de la face guénée par hystérectomie). *Bull. Soc. d'obst. et de gynéc. de Par.* 1926 xv 33.

The patient whose case is reported in this article was a 22 year-old para II. She stated that during her labor her obstetrician pressed upon her abdomen and asked her to bear down. Whenever he

exerted such pressure, she experienced a sharp pain in the left iliac fossa. The membranes were ruptured artificially.

Examination of the patient at the hospital revealed complete dilatation of the cervix, a face presentation, thinning out of the lower uterine segment with a contraction ring above the umbilicus, and cedema of the vulva. The pulse was 92.

Forceps having been applied to rotate the head the infant, which was dead, was delivered with ease. As a slight hæmorrhage occurred, the placenta was delivered manually. Exploration of the uterus then revealed a rupture at the level of the inferior segment on the left side. A diagnosis of complete rupture was made.

Laparotomy disclosed an incomplete rupture of the anterior wall of the uterus on the left side and a very large subperitoneal hæmatoma. A subtotal hysterectomy was performed and a Mikulicz drain inserted. Immediately after the operation the urine contained blood, but the next day it was clear. The convalescence was febrile. The patient was discharged from the hospital on the twenty sixth day.

The cause of the rupture in this case was unusual as face presentation without rotation is rare. The site of the rupture—anterior and to the left—corresponded to the large occipital prominence of the bent head. The appearance of blood in the urine when the urinary bladder remains intact is a well known occurrence in such cases. The erroneous pre-operative diagnosis of complete rupture was due to the separation of the peritoneum from the uterus.

SALVATORE DI PALMA, M D

**Yule G W** A Case of Cæsarean Section in Twin Pregnancy. *Edinburgh M J*, 1926 xxxiii. Edinburgh Obst Soc., 49.

The author reports the case of a primigravida who entered the hospital about three weeks before term with albuminuria of pregnancy associated with vomiting and cedema. The albumin in the urine never fell below 0.2 per cent, but the patient's general condition improved.

After twelve hours of labor, chloroform anæsthesia was induced and forceps were applied, the head having made little advance. The patient then became deeply cyanosed and pulseless and died of

gradual cardiac failure. A child showing marked head moulding was extracted by cæsarean section, but failed to respond to resuscitative measures. On the removal of the placenta, another child was felt. When the second child was extracted the cord was pulsating feebly and slowly. After lengthy mouth to mouth insufflation, it recovered and left the hospital ten days later in good condition.

By accurate record, ten minutes elapsed between the death of the mother and the extraction of the living child, a fact which demonstrates that some fetuses can bear apnoea for a much longer time than others.

MAGNUS P. URNES, M D

**Stone E L** Obstetrical Shock. *Am J Obst & Gynec* 1926 xi 650.

It is suggested that obstetrical shock may depend in part upon factors not ordinarily present or recognized in surgical shock.

Routine observation of the blood pressure throughout the course of operation is recommended as the best prophylactic measure against shock.

A clinical syndrome is described which suggests a clinical relationship between toxic states in pregnancy and liability to shock.

Schuckele has suggested that obstetrical shock may have a definite anatomical and pathological basis in certain organs similar to the lesions of eclampsia. Cases of clear cut nephritis described suggest that their pathological changes may simulate eclamptic lesions more closely than has been ordinarily supposed.

E L CORNELL, M D

## MISCELLANEOUS

**McCormick, C O** Outlet Pelvimetry and Its Importance. *Am J Obst & Gynec* 1926 xi 794.

Because the great majority of obstetrical cases are cared for by the general practitioner, because the majority of medical school graduates become general practitioners and because contracted pelvic outlets are so common, the author believes that the progress of obstetrics cannot be advanced any more rapidly than by greatly emphasizing the important subject of outlet pelvimetry in textbooks and in practical obstetrical teaching.

E L CORNELL, M D

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

**Pieri G** A Method of Operation for Floating Kidney (*Processo operatorio per la cura del rene mobile*) *Arch Ital di urol* 1926 II 398

Pieri's operation for floating kidney consists essentially in the use of a bridge of kidney capsule to suspend the kidney from the twelfth rib. It is performed under ether anaesthesia. Israel's oblique incision is made. This extends from the angle between the twelfth rib and the sacrolumbar mass of muscles to the crest of the ilium which it touches at the midaxillary line. The muscles having been sectioned the kidney bed is opened and the kidney lifted out. An incision is then made in the capsule along the convex margin of the kidney running from a point at the juncture of the upper and middle thirds to a little above the lower pole and another one is made parallel with it on the convex surface. The bridge of capsule between the incisions is carefully dissected free of the kidney cortex and a sterile cord attached to a Pean forceps is passed through it. The twelfth rib is then exposed and denuded of periosteum a fine forceps is passed through an incision made in the posterior surface of the periosteum the cord through the bridge of capsule is grasped and the loop of capsule is drawn up and pulled over the end of the rib. This brings the kidney into an almost normal position.

The advantages of the operation are that its technique is simple it does not require any artificial means of fixation it causes minimal trauma to the kidney as only a small part of the renal surface is decapsulated and it fixes the kidney in an approximately normal position.

The author has treated seven patients by this method. They are now free from pain and the kidney can be felt in the normal position. In his recent cases Pieri has made a notch in the rib for the loop of capsule to rest in to prevent its slipping off.

AUDREY G MORGAN M D

**Pisani L** Total Infarction of the Kidney from Traumatic Necrosis of the Vascular Peduncle (*Infarto totale del rene per trombosi traumatica del peduncolo vascolare*) *Arch Ital di urol* 1926 II 403

Total infarction of the kidney is rare and has very seldom been diagnosed. In a review of the literature Falci was able to find only twenty two cases. Two of these were treated by nephrectomy with recovery. Pisani reports the case of a man of 33 years who was thrown violently from a truck striking on his right side and five months later was admitted to the hospital with kidney symptoms. After a month a diagnosis of total infarction was made and the right

kidney was removed. Uneventful recovery resulted.

The direct cause of infarction is sudden arrest of the circulation by occlusion of the artery or vein. As these are terminal vessels their occlusion is followed by total necrosis. The indirect cause is thrombosis or embolism. From the slow development of the classical symptoms in his case Pisani concludes that a beginning marginal thrombosis was gradually transformed into an occluding thrombus. As there was no hæmaturia he believes the direct and immediate action of the trauma was exerted on the bed of the kidney rather than on the organ itself though there may have been sudden traction on or torsion of the pedicle at the time of the accident to explain. Histological examination showed signs of organization of the thrombus which indicated that it had been present for some time.

The symptoms in this case were classical although they developed slowly and although there were remissions and exacerbations which are rather difficult to explain. Albumin and casts appeared in the urine early and about a month after the accident the patient was treated for nephritis. There was no history of hæmaturia and at the time of the patient's admission to the hospital there was no oliguria the average daily amount of urine being 1,500 ccm. However the symptoms included dysuria, polyuria and burning pain which are not mentioned in the reports of other cases. There were also the general symptoms of chills and fever, thirst, nausea, headache and prostration due to the absorption of the products of the necrotic infarct. Repeated functional examination of the right kidney showed absolute arrest of its function.

While many of these symptoms are common to other kidney diseases and many urologists hold that a diagnosis of infarction is impossible, Pisani is of the opinion that the diagnosis may be based on the following triad of symptoms: (1) continuous and suddenly beginning violent pain localized in the kidney bed; (2) absolute cessation of the secretory function of the kidney; and (3) a marked general toxic infectious condition.

If the infarction is unilateral nephrectomy should be performed at once. The only cases in which recovery resulted were three in which the affected kidney was removed. AUDREY G MORGAN M D

**Helmholz H F** and **Bowers M R** The Kidney: A Filter for Bacteria. VII. The Passage of *Bacillus Coli* through the Kidney with Acute *Staphylococcal* Lesions. *Am J Dis Child* 1926 LXVI 8,6

The frequency with which pyelitis occurs secondary to infections in other parts of the body and the relationship of focal infection to pyelitis makes it

seem probable that the invasion of the colon bacillus is often only secondary to some acute lesion of the kidney

In the experiments reported in this article the animals were injected intravenously with a twenty four hour culture of staphylococcus after a preliminary catheterization to determine that the urine was sterile. From two to eight days later, when the urine showed many staphylococci and large amounts of pus, a twenty four hour culture of colon bacillus was injected intravenously. The animals were then killed with chloroform at varying intervals and the urine was examined for colon bacilli. The experiments were conducted with and without diuresis. The findings for periods up to twenty four hours seem to warrant the conclusion that the presence of acute staphylococcal lesions of the renal parenchyma and of the pelvis does not render the kidney permeable to the colon bacillus. Individual experiments in which the intervals were forty eight hours, seventy two hours, thirteen days, and fourteen days, were also negative

Nichols, B. H. Interpretation of the Pyelographic Shadow. *Radiology* 19 6 11 460

Eisendrath D. N. and Arens, R. A. Variations in Normal Pyelograms. A Clinical Radiological Study. *Radiology* 1926 VI 474

Grant, O. Shadows in the Urinary Tract from a Practical Urological View. *Radiology* 1926 VI 481

According to NICHOLS, the correct interpretation of the deviations from the normal presented by a pyelogram of a kidney pelvis and its calyces is by far the most important factor in the pre-operative diagnosis of pathological conditions of the kidney. Errors in interpretation are due most frequently to failure to recognize a congenital anomaly of the kidney pelvis or an attempt to interpret an incompletely filled kidney pelvis.

Numerous anomalies are described, ranging from the embryonic type of kidney pelvis to the pelvis with many calyces, from a pelvis with an elongated cephalic calyx to one in which the pelvis and ureter are completely divided as far as the bladder and from a slightly rotated pelvis to the almost completely inverted pelvis of the horseshoe kidney. Variations of position are also given consideration with special reference to the information which may be obtained from the pyelogram.

The findings in various pathological conditions such as hydronephrosis, empyema of the kidney, pyelonephritis, pyelitis, pyonephrosis and tuberculosis of the kidney are described in detail. Mention is made of the fact that occasionally renal stones which are not recognizable by the ordinary kidney examination are rendered visible as negative shadows by pyelography. If they are spherical they may simulate tumor.

The pyelogram is of special importance in the differentiation of tumors of the kidney. The findings which should be considered in its interpretation

when a tumor is suspected are enlargement of one pole of the kidney with obliteration, compression, or distortion of the calyces in that area. The entire kidney may be invaded by the tumor, the pelvis being more or less obliterated and the calyces elongated and spindle shaped, with dilated ends. Polycystic kidneys show characteristic cystic areas encroaching on the pelvis, and a solitary cyst if large, encroaches on the terminal calyces.

EISENDRATH and ARENS describe various types of normal pyelograms and illustrate them with roentgenograms. They are of importance as a standard with which to compare the pyelograms obtained in cases of inflammatory lesions and neoplasms of the kidney. A brief description of the authors' technique in pyelography is given. The pyelograms utilized for the study reported were chiefly those of the side opposite to that which the clinical symptoms and findings pointed. In the remainder, they were obtained in cases in which all findings were negative.

The authors divide their cases into four groups. Group 1 comprised those with variations of the ampullary pelvis, Group 2, cases with transition forms varying from those with a long superior major calyx to those with a bifid pelvis and those with two separate pelves. Group 3, cases with the 'pseudo spider' type of normal pelvis, and Group 4 cases which it was impossible to classify.

GRANT emphasizes the need for cooperation between the roentgenologist and urologist to obtain the best results in urological diagnosis. To make a diagnosis of urinary concretions from shadows seen in the roentgenogram along the urinary tract it is frequently necessary to consider also the clinical findings which the urologist can obtain by cystoscopy or other means. On the other hand, the discovery of stones in the bladder on cystoscopic examination should lead to a thorough roentgen examination to ascertain the possible presence of others which may not have been visualized. The detection of small particles of stone in the kidney at the operating table by fluoroscopy or plate is another proof of the interdependence of roentgenology and urology. In borderline cases, the pyelogram can be read with only approximate accuracy. If the picture is not positively diagnostic, the proof must rest on the clinical findings. ADOLPH HARTUNG, M.D.

D'Agata G. Suture of the Renal Pelvis After Pyelolithotomy (A proposito della sutura del bacinetto renale dopo la pielolitotomia). *Arch ital di urol* 1926 II, 267

There has been a great deal of discussion as to whether it is necessary to suture the incision in the kidney pelvis after pyelolithotomy. Recently, for the removal of a very large stone, D'Agata substituted for the usual longitudinal incision a curved one with an obtuse angle. Through this incision the stone was readily removed. To close the apex of the angular incision he used three fine catgut sutures. Uneventful recovery followed.



The author believes that if the incision is not to be sutured it should be sharp and clean cut and without contusion of the edges such as is apt to occur if a large stone is removed through the usual longitudinal incision. His angular incision is best for the removal of large stones.

To settle the question as to whether suture is necessary, D Agata performed three series of experiments on dogs. In one series he made longitudinal incisions from 0.4 to 0.7 cm long in the kidney pelvis and did not suture them. In another he made his angular incision and did not suture and in the third he made his angular incision and sutured the wound.

In the animals in which longitudinal incisions were made and not sutured spontaneous healing occurred. In those with an angular incision spontaneous healing occurred only when suturing was done. A few sutures should therefore be applied at the apex of the angle to prevent extraflexion of the margin of the wound which impedes normal cicatrization. It is also best not to denude the region of the wound of the external connective tissue and the loose fatty tissue around the pelvis as these help to cement the lips of the incision at first. If a longitudinal incision is sufficient it should not be sutured but when an angular incision is necessary because of large size of the stone a few sutures should be used.

AUDREY G MORGAN M D

Rusche C F. Carcinoma of the Kidney. *California & West Med* 1926 xxiv 474.

Rusche reports the case of a man 69 years of age who entered the hospital complaining of pain in the epigastric region and constipation. The pain was sharp but not colicky or radiating. At frequent intervals the feces contained blood. There were no symptoms referable to the genito urinary tract. The urine was microscopically and chemically negative. Cystoscopy revealed no evidence of urethral obstruction and no residual urine.

The left ureteral catheter was inserted readily but it was impossible to introduce the right catheter more than 2 cm. The left kidney secreted normal clear urine. The urine collected from the right side was turbid chiefly because of bleeding caused by the numerous attempts made to pass the catheter. On account of leakage around the ureteral catheters an accurate comparative functional test was impossible. It was apparent however that both kidneys were functioning.

Pyelograms made with the use of sodium bromide showed the left renal pelvis to be normal in size, shape and outline. There was no dilatation of the calyces.

The right kidney was markedly displaced upward and inward and the capacity of its pelvis was greater than the normal average. The upper calyces of the right kidney were normal in shape and outline. The inferior calyx was distorted and elongated to such a degree that it lay parallel with the ureter for a distance of 4 cm.

A ureterogram showed that the ureter bowed toward the midline so that it overlay the vertebral column giving conclusive evidence that the abdominal mass was retroperitoneal. The right ureter was somewhat dilated. There was no evidence of a calculus or a stricture.

The chief points of interest in this case were

- 1 The difficulty in diagnosis presented by the absence of hæmaturia and the vagueness of other symptoms immediately referable to the kidney.
- 2 The value of ureteral catheterization and pyelography in the diagnosis of kidney tumor.
- 3 The unusual size of the palpable mass and the difficulty of ruling out intra abdominal tumor.
- 4 The absence of any discoverable metastases and the excellent general condition of the patient nine months after the operation.

LOUIS GROSS M D

Allenbach Boeckel and Franck. Imperforate Supernumerary Ureter. Diagnosis by Pyelography. Partial Nephro Ureterectomy. (*Urètre surnuméraire borgne diagnostic pyélographique. néphro urétérectomie partielle*). *J d urol méd et chir* 1926 xxi 46.

A woman of 27 years who had been previously well began to have daily attacks of abdominal pain with enlargement of the abdomen. There was no disturbance of micturition. After four months the symptoms stopped and the abdomen returned to its normal size. Subsequently the patient suffered another attack which was more violent than the first and accompanied by signs of intestinal occlusion.

At operation a fluctuating tumor 10 cm long was found at the site of the left ureter. A diagnosis of dilatation of the left ureter having been made the abdomen was closed, it being the surgeon's intention to attempt to remove the obstruction by catheterization of the ureter. However on catheterization the next day both ureters seemed normal.

After the laparotomy the patient remained well for seven months but then had an attack of intense abdominal pain and distention accompanied by fever. Vaginal examination revealed a fluctuating protrusion of the anterior wall. On the following day this opened spontaneously and discharged a large amount of pus. After the discharge of the pus the temperature returned to normal.

The tumor discovered at the first examination the abdominal spasms on the left side, and the evacuation of pus through the vagina suggested a supernumerary ureter. This diagnosis was verified by making a second pyelogram of the left ureter and at the same time injecting collargol into the vaginal fistula.

Operation showed the supernumerary ureter to be entirely separate from the normal one. The upper part of the supernumerary ureter was removed with a wedge cut from the upper pole of the kidney. The lower end was left in order to avoid prolonging the operation. Recovery was com-

plated by suppuration in the stump which was not extirpated

This patient had had an imperforate ureter for twenty three years without any symptoms, although imperforate excretory canals are generally considered to be very serious. The reason why the symptoms developed slowly was revealed by histological examination of the specimen. The ureter appeared grossly to be blind at its upper as well as its lower end, but microscopic examination showed that it had originally communicated with a part of the renal parenchyma, glomeruli were found in the fibrous tissue which connected the upper end of the ureter with the upper pole of the kidney. There had probably been filtration of urine into the ureter since birth, but the part of the kidney drained by this ureter was very small.

The ureter had apparently become affected at the time of the first attack of abdominal pain five years before. Ureteral inflammation generally extends to the periureteral tissue and causes peritonitis.

The symptoms depend upon the site of the lower end of the supernumerary ureter. Spontaneous perforation of the lower end must be confirmed by roentgenography. The operation of choice is sub peritoneal resection of the imperforate ureter and resection of the segment of kidney which it drains.

Only twenty three cases of imperforate supernumerary ureter have been reported. The authors case is the fourth one in which operation was performed.

AUDREY G. MORGAN, M.D.

#### Stewart R. L. Primary Tumors of the Ureter *Brit J Surg* 1926, xiii, 667

Since 1922 when Aschner collected forty seven published cases of primary ureteral tumors, Stewart has been able to collect five additional cases in the literature. He reports also one of his own.

Stewart's case was that of a 75 year old woman who complained of pain in the right side and hematuria which had begun eight months previously. The first attack of hematuria lasted three weeks. The patient was then free from symptoms for three months, when a second attack occurred. Thereafter the pain in the side persisted up to the time the patient was admitted to the hospital.

Physical examination was negative except for tenderness on deep palpation in the right hypochondriac and lumbar regions. Cystoscopic examination revealed a bulbous edema about the right ureteral orifice. Ureteral catheters were passed on the left side for a distance of 30 cm. and on the right side for a distance of 15 cm. Pyelographic studies showed obstruction of the right ureter at the level of the lumbosacral articulation. At operation, the kidney was found to be of normal size. The ureter also was normal in its proximal 6 cm. portion, but below this there was a fusiform swelling 3 cm. long. The kidney and ureter were removed.

The pathological examination showed a dilatation of the ureter proximal to the tumor. The tumor was of a sessile papillary type with a pedunculated

growth extending down into the lumen of the ureter. The distal portion showed microscopically the typical picture of a proliferative benign papilloma. In the proximal portion there were evidences of beginning infiltration. The diagnosis of primary papillary epithelial tumor of the ureter was made.

Calculi are supposed to be an etiologic factor in a certain percentage of cases as they were found in eleven of the fifty four reported.

Neoplasms of the ureter are most common in the sixth decade of life. Their incidence in males is about the same as in females.

Stewart gives the following pathological classification of ureteral tumors: (A) Connective tissue tumors, sarcoma; (B) Epithelial tumors, (1) benign papilloma, (2) papillary carcinoma, and (3) non papillary carcinoma.

Sarcoma is rare, only five cases have been reported. Benign papillomata are the most common tumors of the ureter. They are usually situated at the proximal or the distal end.

Papillary tumors, which are especially prone to become malignant, are usually located at the lower end of the ureter.

The non papillary carcinomata are the rarest forms of epithelial tumors of the ureter.

Practically all ureteral tumors produce a secondary hydronephrosis. The malignant forms metastasize early to the retroperitoneal nodes.

Hematuria, the most frequent sign, occurs in 65 per cent of all cases and in over 75 per cent of cases of papilloma and papillary carcinoma. Pain, which is much less common, varies from a dull ache to sharp lancinating pain. Hydronephrosis has been found in 55 per cent of the cases. Tumors of the ureter may very closely simulate calculi, renal and vesical tumors, and hydronephrosis.

The diagnosis is difficult, in nearly 40 per cent of the reported cases the tumor was discovered after death. If a tumor can be seen on cystoscopic examination protruding from the ureter into the bladder, the diagnosis is much easier. When the introduction of a ureteral catheter is obstructed and is followed by profuse bleeding, the possibility of a ureteral tumor must be borne in mind. The use of the pyelogram offers the most help in the diagnosis.

The treatment depends upon the type and location of the tumor and the patient's condition. In most cases the ideal treatment is complete nephro-ureterectomy. If the tumor is at the lower end of the ureter and projects into the bladder, endoscopic fulguration or local excision with reimplantation of the ureteral stump into the bladder may be the method of choice.

ALTON OCHSNER, M.D.

#### BLADDER, URETHRA, AND PENIS

Rubritius H. and Schwarz O. Contribution to the Problem of Contracture of the Neck of the Bladder. *J Urol* 1926 vi, 461.

The changes in the sphincter of the bladder and its nerve supply which lead to retention range from

prostatic hypertrophy to microscopic enlargement of the periurethral glands inflammatory changes in the sphincter strictures of the urethra, spinal cord disease hysteria etc. These conditions result in a loss of sensitiveness of the reflex diminution of elasticity hypertonicity and finally mechanical contracture of the orifice.

It is impossible to designate this entire group of conditions by any one term that will convey more than the term retention.

The authors do not recognize a strict differentiation between structural and functional factors. The common functional factor in practically all cases of retention is hypertonus of the sphincter. This is the same whether it is brought about by a small adenoma or by inflammatory contraction. In one group of cases the hypertonia was so marked that it must be considered the only cause of the retention.

The best method of treatment consists in transvesical incision into the sphincter and the enucleation of any periurethral adenoma that may be present.

C TRAVERS SCLIPITA M D

**Aysaquer and Papin. The Use of Heat and Cold in the Urethra.** (Les méthodes thermo et cryo thérapeutiques dans l'urèthre) *J d urol méd et chir* 1926 xvi 178

The beneficial action of heat and cold on inflammatory processes of all kinds is well known. The author uses heat and cold in the treatment of gonorrhoeal urethritis. A rubber band having been placed around the root of the penis to slow the circulation the patient takes a position on all fours with cushions under his knees and hands and immerses the penis in a Dewar flask containing hot water or melting ice.

Heat can be applied without causing pain up to a temperature of 43 degrees C in the urethra or up to 43.5 degrees C if a dose of 1.5 gm. of pyramidon is given beforehand. This is called the threshold of pain for heat. With anesthetization of the penis a higher degree of heat can be borne.

Gonococci are killed at 45.4 degrees C *in vitro* and probably at a lower temperature *in vivo*. At any rate their multiplication is stopped at 39.5 degrees C. The heat can be continued for an hour and a quarter without doing any harm. As soon as the penis is removed from the bath and the band is removed it regains its normal color.

In the use of cold pain begins at about 14 degrees C which is called the threshold of pain from cold. Between 11 and 6.5 degrees C the pain stops and there is anesthesia to the touch. This is the threshold of anesthesia from cold. It is less definite than the thresholds of pain. Cold is better than heat for the patient because of the natural anesthesia it induces and because cold is associated with much less danger of coagulation of the blood.

As the vitality of the gonococcus is low when it is removed from the incubator it is probable that it can be killed by a rather moderate degree of cold.

The simplest method of treating with cold consists in ligating the penis and exposing it to the air when the weather is cold enough. This method might be used for prophylaxis.

So far, the author's work has been limited to the development of the technique and the determination of the degrees of heat and cold that can be borne without injury.

The results of the therapeutic application of the method will be reported later.

AUDREY G MORGAN M D

**Botteselle R. Modifications of Flap Urethroplasty in Perineal Fistula of the Urethra.** (Modificazione ai processi di uretroplastica a lembi nel c. fistola uretrali penneali) *Arch ital di urol* 1926 ii 256

In Botteselle's urethroplasty for fistula of the urethra opening on the perineum the patient is placed on his back with his thighs flexed as for a perineal cystotomy. A No. 20 Nelaton sound is introduced into the urethra and two parallel transverse incisions are made at the two ends of the fistula and prolonged far enough laterally to form the two sides of the flap to be used. A vertical incision uniting the two transverse incisions is then made at the right margin of the fistula.

The cicatricial tissue around the orifice is excised in such a manner as to leave the margins of the excised area perfectly rectilinear. Another incision is then made 1 cm. to the left of the border of the excised area to unite the two transverse incisions and form the fourth side of a rectangle. In this way a rectangular flap is created which is sufficiently large to cover the fistula without changing the caliber of the canal. The flap is dissected free except for a hinge at its right border turned over the fistula and fastened with fine non-penetrating catgut sutures.

The two original transverse incisions are then prolonged a little to the left and much more to the right to form two quadrangular flaps somewhat different in size. The flaps are brought together and sutured with silk. The transverse incisions are also sutured. The longitudinal line then lies to the left of the midline and because of the different elasticity of the superficial and deep tissues the superficial and deep suture lines do not lie over each other. The region is dressed with a T bandage and a retention catheter is introduced for forty-eight hours.

For successful results the urine must be aseptic and the urethra normal in caliber above and below the site of the operation. Drainage is not necessary. The operation should be done under general anesthesia as local anesthesia causes imbibition of the tissues which may interfere with their vitality and prevent prompt healing. The cutaneous flap should be denuded of hair as hairs favor the formation of urethral calculi. Depilation by electricity should be done before the operation.

The steps in the operation are shown in illustrations.

AUDREY G MORGAN M D

## GENITAL ORGANS

**Cattaneo G** The Indications Technique and Results of Frey's Prostatectomy (Indicazioni condizioni permissive, tecnica e risultati prossimi della prostatectomia alla Frey) *Arch ital di urol* 1926 11 93

Frey's operation is a suprapubic prostatectomy which may be performed in one or two stages as indicated. To prevent postoperative hæmorrhage an intravenous injection of 20 c cm of 5 per cent calcium chloride is given the day before the operation and another two hours before. In about half of the cases treated in this way it has been possible to dispense with tamponade of the bed of the prostate. During the first years this method was used at the Milan Clinic (1909 to 1913) the mortality was 14.38 per cent, in 1921 it was 4.55 per cent, and in a series of 100 cases operated upon in the period from May, 1913, to May 1925 it fell to 1 per cent. Details of these 100 cases are given in a table.

Retention of urine is the chief indication for operation. If the urine is aseptic and small in amount (less than 100 c cm) expectant treatment is justified, especially if the patient can present himself for periodical examinations to determine whether the retention is progressing or remaining stationary.

Absolute indications for prostatectomy are repeated hæmaturia the suspicion of cancerous degeneration, primary or secondary calculus and papillomatous tumors and diverticula of the bladder.

Operation is indicated in cases of septic retention because no palliative treatment can overcome sepsis of the bladder when once it has become established. Prostatectomy should not be performed as an emergency operation. In emergency cases a suprapubic cystotomy should be done first and the major operation postponed until the patient is in a better condition. Before operation an investigation of the function of the kidneys should be made by the determination of Ambard's constant and the phenol phthalein test.

However, these findings should not be considered an absolute guide, the general condition must be considered with them.

In the majority of cases prostatectomy should be performed in two stages, the one stage operation being reserved for small prostates deformity of the neck, and musculo-fibrous lesions. The improvement in the results of the operation is due in great measure to the abandonment of general anaesthesia in favor of local anaesthesia for suprapubic cystotomy and epidural anaesthesia for prostatectomy. Although the mortality has been greatly reduced, it must be remembered that prostatectomy is a serious operation and every patient with a prostatic condition must be given a careful examination and preparation.

AUDREY G MORGAN M D

**Tengwall E** Two Hundred and Fifty Suprapubic Prostatectomies for Hypertrophy of the Prostate *Acta chirurg Scand*, 1926, 114 455

The author reports the results of 250 suprapubic prostatectomies performed by him during the period from 1910 to 1931. The late results in 188 cases are known.

Twenty seven of the patients are dead, a mortality of 10.8 per cent. Good results were obtained in 180 cases (72 per cent) fair results in two (0.80 per cent) and poor results in six (2.4 per cent).

Tengwall performs the operation according to the Frey technique but drains the bladder with a retention catheter. Only local anaesthesia is used. The prostatic bed is tamponed. The greatest importance is attached to the testing of the function of the kidneys. For this test Volhard's water charge test is used in connection with the concentration test and recently, also with the determination of the blood nitrogen.

If the kidney function is poor pre-operative treatment under the control of repeated tests of kidney function made by draining the urinary passages and the administration of an abundant supply of fluid are of great importance. If the function of the kidneys improves only slowly under this treatment, the operation should be performed in two stages.

One definite indication for operation is chronic complete retention. This is present in the cases of all patients who live what is known as the 'catheter life'. The most common indication for operation is chronic incomplete retention. Operation is indicated also by a residual urine of from 50 to 100 c cm associated with frequent urination performed only with great effort and straining. Other indications are unendurable pain during urination and violent intravesical bleeding.

In 145 cases in which a microscopic examination was made cancer was found in only one. Therefore the author does not regard the danger of cancer as an indication for operation. Infection in the urinary passages is not a contra indication to operation, but renders necessary careful preliminary treatment and control of the functioning of the kidneys.

The author attempts to explain the deaths and the poor and fair results in his cases and discusses the effect of the operation on the sexual functions in seventy four cases.

The complications developing in the cases reviewed included epididymitis which occurred in 73 per cent—in the majority during the after treatment—and strictures which occurred seven times. In three of the cases of stricture there was complete closure of the base of the bladder which necessitated operation.

The author emphasizes the importance of repeated examination during the first six months after the operation in order to prevent stricture. Hernia of the wound occurred in four of his cases, but there was no instance in which fistula of the bladder persisted.

## MISCELLANEOUS

Young H H The Diagnosis and Treatment of Hematuria *Atlantic M J* 1926 xvi 587

Hæmaturia may be due to a general condition such as purpura leucæmia or typhoid fever. Hæmoglobinuria differs from hæmaturia in the color, the microscopic findings and the findings of the benzidin and spectroscopic tests.

Chief of the hæmaturias associated with specific local conditions are the so called idiopathic hæmaturias in which the pathological examination fails to show anything abnormal.

Traumatic hæmaturia is common in war and industrial surgical cases. Calculus is a common cause but is less commonly responsible than tuberculosis. The bleeding is not at all commensurate with the size of the calculus. Other common causes of hæmaturia are tumors. When a tumor is responsible the severity of the bleeding depends upon the extent to which the kidney pelvis is involved. Aneurism of the renal artery as a cause of hæmaturia is occasionally reported in the literature. The symptoms of aneurisms are very vague but in some instances a cure has been obtained by operation.

Hæmaturia associated with nephritis, pyelonephritis, pyelitis or pyelitis cystica is difficult to differentiate from that due to tuberculosis or cal-

culus. The hæmaturia of septic infarction is usually unilateral and fulminating and causes death within a few days unless operation is performed early. Bleeding from tumors of the bladder may be excessive. Bleeding from vesical tuberculosis is not as severe as that caused by tuberculosis of the kidney.

Foreign bodies are often the cause of hæmaturia but diverticula are seldom responsible. Prostatic bleeding is common but in carcinoma of the prostate it usually does not occur until late in the course of the disease.

Bleeding from the bladder or urethra may often be stopped by the use of styptics or caustics, fulguration or radium. If a kidney or a ureter is the source of the bleeding a definite diagnosis can be made as a rule by cystoscopy with pyelography or pyelo ureterography and comparative functional tests of the kidneys. Essential hæmaturia may be stopped by the passage of the ureteral catheter or the injection into the kidney pelvis of a 1 to 5 per cent solution of silver nitrate. In cases of tumor or tuberculosis of the urinary tract it is usually best to stop the hæmaturia if possible by transfusion and to improve the general condition. Bladder tumors respond well to fulguration, diathermy and radium treatment. Infiltrating carcinoma requires surgery or radium irradiation, and prostatic bleeding may demand prostatectomy.

CLAUDE D HOLMES M D

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Nystrom G. The Prognosis and Technique of Embolectomy (Zur Prognose und Methodik der Embolectomy) *Acta chirurg Scand* 1926 15, 2 9

In more than one third of the reported cases of embolectomy for impending gangrene of the extremities the operation had a clinically favorable result. Arteriosclerosis does not exclude a good result, but when there are more serious changes in the intima there is danger that sounds introduced into the vessel may be caught in furrows in the intima and cause tunneling. In cases of emboli at the bifurcation of the aorta or in the common iliac artery laparotomy is not advisable as it is technically difficult and associated with great risk. If the embolus cannot be removed by a sound introduced into the vessel it is advisable to introduce the hand from the groin retroperitoneally and to "milk down" the embolus to a convenient site in the femoral artery from which it can be removed by arteriotomy.

The author reports five cases of embolectomy. The first was that of a man 54 years of age who was suffering from arteriosclerosis and an embolus in the lower part of the femoral artery. After twenty-four hours arteriotomy was performed above the embolus and the embolus was pushed down by means of a sound and removed through an incision in the popliteal artery. The circulation was restored but gangrene supervened and necessitated amputation of the leg.

The second case was that of a woman 64 years of age who had heart disease and emboli in both femoral arteries in the groin. The emboli were removed by arteriotomy performed directly over them. The circulation was completely restored and the patient survived.

The third patient whose case is reported was a man 68 years old who had advanced arteriosclerosis, myocarditis, and emboli in both iliac arteries. An attempt to bring the emboli down after arteriotomy in the groin was unsuccessful. In the performance of the laparotomy the division of the common iliac artery into the external iliac and the hypogastric was mistaken for the bifurcation of the aorta. This error was due to too small an incision, great corpulence of the patient, and large vessels. The hypogastric artery, full of thrombi, was believed to be the left common iliac and was cut open. It was then sutured. An attempt to remove the emboli directly through the laparotomy incision was unsuccessful. The hand was therefore introduced through the incision in the groin behind the peritoneum, upward along the vessels on each side, and the emboli were milked down to the sites for arteriotomy in the femoral artery. The obstruction to the

circulation was thereby removed but during the operation a new thrombus appeared in the right femoral artery. The patient died after twenty-four hours and postmortem examination revealed thrombosis of both femoral arteries.

Case 4 was that of a woman 56 years of age who had a thrombus in the right iliac vein, an embolus in the right pulmonary artery, paradoxical arterial embolism (through the open foramen ovale), and emboli in the brain and both common iliac arteries. Through incisions parallel with the inguinal ligament on each side it was possible, retroperitoneally, to milk down the emboli in the iliac arteries and remove them through an arteriotomy incision in the femoral artery. The circulation in the legs was completely restored. After seven hours there was a strong pulse in the arteries of both feet, but the patient died from emboli in the brain.

The fifth case was that of a man 77 years of age who had an embolus in the left brachial artery. Embolectomy performed after three and a half hours had a good result. In connection with this case the author cites another of brachial embolus in which operation was not performed because the patient entered the hospital late (the fifth day). The author believes that the later appearing gangrene would perhaps have been avoided if an immediate embolectomy had been done.

Giordano, D. Aneurism of the Abdominal Aorta with Gastric Symptoms, Introduction of a Silver plated Wire into the Sac of the Aneurism (Aneurisma dell'aorta addominale con sintomatologia gastrica, introduzione di filo argentato nel sacco aneurismatico) *Ann ital di chir*, 1926, v, 125

The author reports the case of a man 49 years of age who entered the hospital with what was believed to be a tumor of the lesser curvature of the stomach. Fifteen years ago the patient contracted syphilis. For this he was given calomel injections, but at the end of a month he discontinued the treatment because he felt well. About seven years ago he began to have a burning pain in the stomach which occurred about two hours after meals and lasted for an hour or two. Two years ago he lost 2 kgm in weight and, in addition to the burning sensation, experienced a feeling of weight in the epigastrium which began after meals with pain lasting for one or two hours and was associated with acid regurgitation and constipation. For the past five months he had had epigastric pain irradiating to the back.

Fluoroscopic examination showed a defect in the lesser curvature which was assumed to be due to a tumor.

On physical examination the patient was found to be poorly nourished and pale and to have a foetid breath from dental caries. The abdomen was rather rigid and pain was present in the epigastric region. The pain was most severe in the midline beneath the ensiform process. The rigidity of the muscles made examination difficult but palpation revealed a tumor with an arterial pulsation. The pulsation was thought to be transmitted. Roentgenographic examination showed a large stomach with a tendency toward hypotonia and deformity of the shadow of the pylorus and antrum where pressure was painful.

An epigastric incision revealed a pulsating retrogastric tumor the size of a fist which was evidently an aneurism of the subdiaphragmatic aorta.

Through a large syringe needle a 30 cm piece of thin copper wire plated with silver was passed into the aneurism and coiled within it. The bleeding was stopped by the injection of 5 c cm of coagulum into the tissues around the aneurism. After the operation intravenous injections of an arsenobenzol compound and intramuscular injections of calomel were given.

A month after the operation roentgen examination showed that the end of the wire had become uncoiled and had risen in the aorta from the level of the second lumbar vertebra to the level of the seventh dorsal vertebra. At another examination fifteen days later the wire was found in the same position and a semilunar segment of the lower and anterior part of the aneurism appeared more opaque suggesting the presence of stratified clots adherent to the wall. As the patient felt well and was relieved of all his gastric symptoms he left the hospital and refused to return for further injections.

When he was seen again two years and three months later he had gained weight his color was good and he still felt well. Epigastric palpation still showed pulsation from behind forward but no lateral expansion. Roentgenoscopic examination revealed no expansion of the tumor. Roentgenographic examination showed that the upper part of the wire had broken off and had risen in the aorta, curving with the arch of the vessel.

It is impossible to determine whether the result in this case was due to the introduction of the wire into the aneurism or to the antisyphilitic treatment but as the improvement began immediately after the operation Giordano believes the surgical treatment was at least partly responsible for it. The presence of the broken wire in the aorta is still a cause for anxiety.

Articles by Colt Marshall and Wakeley in the July 1925 issue of the *British Journal of Surgery* review three similar operations. One of the patients survived only eight and a half months and the others died within a few days after the operation. Because of the danger of acute dilatation of the stomach from the pressure on the pyloric or prepyloric region the authors advise gastroenterostomy after the insertion of wire into the aneurism but Giordano

calls attention to the fact that in his case the operation not only failed to cause gastric symptoms but relieved those which were already present. Giordano is unable to say however whether the relief was due to the decrease in the expansion of the aneurismal sac or to section of sympathetic fibers in the exposure of the sac above the lesser curvature.

AUDREY G. MORGAN M.D.

## BLOOD TRANSFUSION

Morawitz P. Blood Transfusion (Ueber Bluttransfusion). *Monatsschr. f. Kinderheilk.* 1926 xxvi 320

Severe reactions to transfusion are caused by 1. o agglutinins and isolymins. Some of them may be prevented by determining the group of the donor and recipient before every transfusion either with the use of the serum of a member of the clinic staff belonging to Group 1 or 2 or by means of a test serum. In spite of this however chill occur when the blood is of the proper type and occasionally severe reactions are caused by repeated transfusions. In one case in which blood of Group 3 was given a patient belonging to Group 1 the reaction was so severe that it was necessary to stop the transfusion. It is possible that the group classification of Moss may not exactly correspond to the conditions present. Nevertheless it should always be used. Reliance is not to be placed upon a biological test alone.

Besides carbon dioxide poisoning the indications for transfusion include the anæmias. An especially important indication is pernicious anæmia. Most secondary anæmias become cured even without transfusion when their cause is tuberculosis or a tumor. Transfusion is without avail. Transfusion is especially beneficial before operation in cases of bleeding gastric ulcer and in cases with a hemorrhagic diathesis. In a case of true hæmophilia it saved the patient's life but it did not shorten the coagulation time.

Most of the 100 transfusions reviewed by the author were done for pernicious anæmia. A large transfusion in this condition is sure to result in a remission. Transfusion is superior to Neisser and arsenic therapy and should be employed before the extirpation of the spleen. The remissions may last for a year or longer. The results are better in young persons than in old persons.

Small intramuscular injections of blood are without effect in pernicious anæmia but may be of value in secondary anæmia in which there is a lack not only of iron but also of some of the other important elements of hæmoglobin. The author is of the same opinion with regard to the effect of intravenous injections of small amounts (10 to 20 c cm.) of blood.

Results may be obtained with every form of transfusion. The internists and pediatricians prefer the indirect methods. The results are best when the patient reacts with chills and fever.

In discussing the length of time that the transfused erythrocytes survive the author calls attention to the fact that these cells are free cells without

nuclei and nearly with a metabolism. Conditions are therefore more favorable for their survival than for the survival of other transplants. There is considerable evidence that they may survive. Hess was able to produce an artificial polycythæmia in rabbits by transfusion. In one of the author's cases of secondary anæmia with pale erythrocytes poor in hæmoglobin the microscope still showed the presence of the highly colored transfused erythrocytes eight days after the transfusion.

Studies of the nitrogen metabolism lead to the same conclusions. In a case of pernicious anæmia the quantity of urobilin excreted in a period of two days after the transfusion corresponded to the amount of hæmoglobin transfused. Before the transfusion the quantity was 1,700 mgm. whereas in the two days following the transfusion it was 4,000 mgm. Evidently the entire quantity of blood transfused was broken down, but in spite of this, there was a remission of the condition lasting for nine months.

Remissions are caused not by an increase in the function of the bone marrow, but by a slowing of the destruction of the blood. During a remission the function of the bone marrow is even less than before. The unknown factor which is responsible for the quick destruction of the erythrocytes is in some way weakened by the transfusion. In pernicious anæmia transfusion is neither a substitution nor a stimulation therapy but has a favorable effect upon the greatly increased destruction of the blood. Where this effect is exerted is still unknown. Even when there is rapid destruction of erythrocytes in pernicious anæmia, transfusion may have a favorable effect.

HEMPFL (Z)

### LYMPH VESSELS AND GLANDS

Minot G. R. and Isaacs R. Lymphoblastoma (Malignant Lymphoma). The Age and Sex Incidence, the Duration of the Disease and the Effect of Roentgen Ray and Radium Irradiation and Surgery. *J. Am. M. Ass.* 1926, lxxvi, 1185-1205.

One of the important problems of modern medicine is the group of conditions which have as their

most prominent feature progressive enlargement of the lymphoid tissue.

Under the general heading of "lymphoblastoma" the authors recognize four types of disease: lymphatic leukaemia, pseudo and aleukaemic lymphatic leukaemia, Hodgkin's disease, and lymphosarcoma. They review 477 cases of lymphoblastoma, excluding typical cases of acute and chronic lymphatic leukaemia.

Lymphoblastoma occurs more frequently in males than in females. In the cases reviewed the ratio was 2.12 to 1. In both sexes it is most common between the twentieth and twenty-fourth years of age. The disease appears to be relatively rare in males at puberty. In females it occurs most frequently at puberty and the menopause.

The cases reviewed show that age and sex influence the susceptibility of the lymphoid tissue to disease.

The average duration of life in all cases was 2.76 years, but in about 10 per cent of both the irradiated and non-irradiated cases the disease had been present for six years or longer.

Patients treated by surgery, whether or not they received roentgen ray or radon treatment, had lymphoblastoma on the average for 3.67 years or 1.11 years longer than the 334 not undergoing operation. However, it must be borne in mind that surgical procedures are apt to be undertaken chiefly when lymphoblastoma seems local or has progressed slowly or is not extensive.

Among males the chance for a long duration of the disease is definitely greater for those over 34 years and under 63 years of age than for those under 25 years.

In females the duration of the disease tends to be longer than in males.

When a group of cases is considered as a whole, there is no definite evidence that irradiation has distinctly prolonged the duration of lymphoblastoma, but it is undoubtedly of great value because it alleviates the symptoms, decreases the size of the lesions and improves the patient's efficiency.

In some cases surgery may have a favorable influence upon the duration of the condition, particularly if it is employed early and thoroughly, and is followed by irradiation.

JACOB S. GROVE, M.D.



# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Lillenthal H and Ziegler J M A Study in the  
Disinfection of the Hands *Ann Surg* 1926  
lxxxi: 831

The authors demonstrated the ineffectiveness of mechanical cleansing of the hands with green soap by using a mixture of lampblack and oil. In spite of vigorous and prolonged efforts with green soap and the scrub brush a black line remained under and around the finger nails. Other cleansing preparations were used with the same results. After the cleansing cultures showed that all areas of the hands except the subungual and periungual tissues were sterile.

Shortly after Grossich's technique for sterilization of the skin had been almost universally accepted Lillenthal adopted the following technique for sterilization of the hands.

The perfectly dry finger tips are immersed in U S P tincture of iodine up to the joint of the terminal phalanx and then allowed to dry for five minutes. At the end of that time the usual scrubbing process is carried out.

Bacteriological tests have demonstrated that tincture of iodine thus employed will completely sterilize the spaces about the nails.

The authors recommend the use of lampblack to perfect the technique of scrubbing.

J FRANK DOUGHTY M D

Lewis D Postoperative Treatment *Boston M & S J* 1926 cxiv 913

Bryant J Surgical Convalescence Medical Aspects *Boston M & S J* 1926 cxiv 920

LEWIS reminds us that the postoperative treatment indicated in surgical cases depends largely upon the character of the operation, the manner in which it was performed, and the organs or tissues involved. The aim of the surgeon is to restore the patient to health in the best possible manner and as quickly as possible. Postoperative treatment has been reduced markedly by the adoption of a strictly aseptic technique. The pre-operative care has much to do with the necessity for postoperative treatment. Light food may usually be allowed until a few hours before the operation and water given up to half an hour before. As a rule it is not advisable to disturb the regular routine until a short time before the operation.

During the operation care should be taken to protect the back because backache is a common postoperative complaint. Gas pains after operation may be relieved by the introduction of a rectal tube, the application of heat to the abdomen

and the administration of opiates. The ordinary vomiting following gastro-intestinal operations is usually relieved by a carefully introduced stomach tube, but the so-called vicious circle which means a mechanical obstruction, may require operative procedures.

Two postoperative complications frequently demanding special attention are hiccough and acute dilatation of the stomach. Hiccough occurs most frequently in cases in which the abdominal viscera and their peritoneal coverings are involved and in cases of brain and spinal cord lesions. Fairly frequently it follows operations on the gall bladder and stomach. It is more common in men than in women. The type of breathing may be a factor. In the author's experience, gastric lavage has given more relief from this complication following gall bladder and stomach operations than any other procedure. In severe cases injection of the phrenic nerve with alcohol is sometimes necessary.

Acute dilatation of the stomach occurs most often after laparotomies, particularly operations on the stomach and female pelvic organs. It may be reflex. It is often manifested after twenty-four or forty-eight hours, beginning with vomiting and a sense of fullness in the epigastrium. The vomiting becomes more pronounced but is virtually a regurgitation as if the stomach were overflowing. The symptoms are similar to those of peritonitis from perforation and intestinal obstruction. There is a marked and increasing thirst. The urine becomes scanty and the body apparently dehydrated. The toxic manifestations increase at a rapid rate. The amount of fluid removed from the stomach through the tube is greatly in excess of the fluid intake.

It is essential to recognize the condition early as nothing can be done for it surgically. The early removal of the fluid in the stomach is of great value. Lavage should be continued until the fluid returns clear. It is advisable to induce sleep with opiates and to give large quantities of normal salt solution.

Ileus as a postoperative complication is much less frequent today than formerly. It may be paralytic or mechanical. As the contents of the obstructed loops of bowel are very toxic, a jejunostomy is frequently advisable.

After the operation, fluids should be given by mouth if possible, as soon as the patient is awake but if there is a contra-indication to giving them in this way, they may be administered by the drip method. The drip method is preferable to the intermittent administration of from 4 to 6 oz every four to six hours. To overcome dehydration, fluid may be given intravenously and insulin subcutaneously. If acidosis is present, glucose should

be given intravenously and insulin subcutaneously. The patient should be allowed to rest and his diet and normal function restored as early as possible.

BRYANT states that so far as convalescence is concerned there is little difference between medical and surgical conditions. It has been considered for many years that the average convalescent period following a surgical operation is about three weeks, but Bryant believes it is six weeks since, after the hospital stay, another three weeks is required to get the patient back to normal. He suggests that some arrangement might be made advantageously whereby patients leaving crowded city hospitals could be sent to a camp or convalescent institution in the country where adequate services could be given during the second three weeks period at a cost less than one half the regular hospital rate and to better advantage. The value of such a procedure was shown by experience in the army. Patients receiving convalescent care in camps following their dismissal from the hospital were in much better physical and mental condition than those who re-entered military life immediately after their dismissal. The usual routine of rapidly discharging patients and returning them to service early necessitated the return to the hospital of from 15 to 20 per cent.

Co operation between the medical attendant who refers the case and the surgeon who operates is necessary in order that there may be continuity of service.

In order that the convalescent period may be as brief as possible the patient should be studied carefully before the operation when circumstances will permit. Local infections should be sought for and if possible, remedied. A system of nerve muscle training through proper exercise is of advantage.

It is advisable to watch the diet carefully during this pre-operative period, cutting down the protein and fat intake, increasing the fluids, and giving a normal amount of vitamins, greens, and starches. Adequate rest the night before the operation is imperative. The postoperative measures are also of importance.

The pain following operation should be controlled with opiates, but the time that the opiates should be given must not be left to the judgment of the nurse. Nausea and vomiting should be combated by the administration of plain or soda water, carbonated drinks, or albumin water.

A great deal depends upon the nursing and other care given the first few days after the operation. Everything possible should be done to relieve the patient's mind and promote his bodily comfort.

HAROLD M. CAMP, M.D.

Albano G. Hydræmia in Certain Postoperative Syndromes (L'hydrémie dans quelques syndromes postopératoires) *J. d'urolog. méd. et chir.* 1926, XXI, 145.

Soon after patients get out of bed following operations on the urinary tract the development of

œdema is often noted in the evening. This may be limited to the region of the malleoli, but sometimes extends to the feet or legs. There may be also diurnal oliguria and nocturnal polyuria. The patient is often alarmed by the symptoms, attributing them to kidney disease.

The author was at first of the opinion that this syndrome occurred only after prostatectomy on elderly men, but he has seen it also after hysterectomy by the Wertheim method and has come to the conclusion that it is quite common after surgical operations in general. He believes that the kidneys have nothing to do with it. According to his theory, the aqueous part of the serum collects in the tissues during the day, and during the night is brought back and directed to the blood and kidneys by the recumbent position.

To test this theory he examined two series of persons, one series of whom had been operated upon and the other series of whom were normal. Of the subjects who had been operated upon sixteen were treated for prostatism, three for calculus of the bladder, and one for cancer of the bladder, two had had a nephrectomy, one a nephrotomy, and two a Wertheim hysterectomy. Refractometric examinations of the blood were made during the day just after the subject retired and at mid night after he had been lying down for four hours.

The results showed that in the postoperative group there was a much higher percentage of cases with a difference of more than 0.9 per cent between the day and the night hydræmia and that the index had a very evident tendency to descend to below normal at night. The author believes that the latter tendency is due to a disturbance of the water equilibrium between the tissues and the blood which is of a physicochemical nature but the cause of which is unknown. He intends to make a further study of the refractometric index in the nephropathies due to pregnancy and in true nephritis complicating pregnancy determining the percentage of albumin in the œdematous fluid in the two conditions.

AUDREY G. MORGAN, M.D.

#### ANTISEPTIC SURGERY, TREATMENT OF WOUNDS AND INFECTIONS

Genner V. The Influence of Chemical Light Baths on the Bactericidal Processes in the Blood and the Serum. *Acta radiol.* 1926, v, 172.

The observation of Colebrook, Eidinow, and Hill of a bactericidal optimum in rabbit serum two hours after ultraviolet light treatment of the animal led the author to investigate this matter in a series of experiments with certain modifications of technique different from those used by the investigators mentioned. In only a few isolated cases did the findings in any way tend to substantiate the theory of an increase in bactericidal power due to the action of light, and even in these the effect was not as pronounced as that reported and not constant even in the same animal. The author therefore concludes

that the effect is not due entirely to the action of light. In human serum no variations in the bactericidal power were observed. Even repeated light baths did not seem to produce any very lasting increase.

In rabbit serum a very considerable increase in the bactericidal substances was observed to follow repeated experiments on the same animal, but undoubtedly this increase was due only to the repeated blood letting.

Parallel experiments with respectively serum and dehbinated blood from the same rabbit seemed to show that the bactericidal effect of the serum is considerably stronger than that of the blood.

**Horsley J S Jr** *The Intravenous Administration of Gentian Violet and Mercurochrome 220 Soluble in the Treatment of Sepsis* *Virginia M Mon* 1926 *lin* 148

In experiments performed on normal dogs Horsley found that the intravenous injection of 1 per cent gentian violet or mercurochrome in doses up to 7 mgm per kilogram of body weight was not followed by any demonstrable pathological lesion.

Of thirty eight clinical cases in which a  $\frac{1}{2}$  to 1 per cent solution of gentian violet was administered

fifty one times decided improvement resulted in twenty one. In sepsis due to Gram positive staphylococci in which the lesions were accessible to the blood stream the intravenous use of gentian violet in doses ranging from 3 to 7 mgm per kilogram of body weight was often most beneficial.

In doses ranging from 3 to 5 mgm per kilogram of body weight a 1 per cent aqueous solution of mercurochrome caused improvement in only four of twelve cases of sepsis. The most marked improvement was noted in cases of sepsis caused by Gram negative organisms of the colon bacillus group or by the gonococcus. When no reaction occurred there was usually no definite improvement. Nine moderate and two severe reactions occurred in this series of eighteen cases.

Doses of less than 3 mgm per kilogram of body weight of either of the dyes were of little value. Often several injections at intervals were necessary.

The mode of action of these dyes is complex and as yet unexplained. Similar results followed in increasing intramuscular injections of milk at intervals and may occur after powerful reactions caused by other than intravenous preparations.

J FRANK DOUGHTY M D

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Slye M Some Misconceptions Regarding the Relation of Heredity to Cancer and Other Diseases Studies in the Incidence and Inheritability of Spontaneous Cancer in Mice—Twenty Third Report *J Am M Ass* 1926 lxxvii 1599

The attempt to establish the relationship of heredity to disease is handicapped by preconceived ideas and prejudices not based on scientific facts. Trouble is caused also by widely divergent interpretations of terms used in this connection. Hereditary diseases are not contracted *in utero*. The term 'congenital' is often misinterpreted or misused, frequently being considered synonymous with 'hereditary.' Intra uterine influences determine congenital conditions but have nothing to do with those that are hereditary. Although the question of inheritance is often considered in connection with certain diseases there have been few adequate studies to prove or disprove the idea scientifically.

The author includes in her article three graphs showing respectively how albinos can be derived by the classical method when neither parent nor any of the four grandparents were albino, how blue eyed individuals are readily obtained when neither parent nor any of the four grandparents were blue eyed and how cancerous individuals can be obtained by the classical method when neither parent nor any of the four grandparents had cancer. This was accomplished by mating a hybrid and a dominant type in both maternal and paternal grandparents and then mating the two hybrid types to produce the recessive type. The author's studies on cancer date back to 1911. Previous to that time, nearly all studies on animal cancer were carried on through the use of grafted cancers.

Reference is made to the work of Fibiger, Bullock and Curtis, and Yamagiwa which, according to the author, do not oppose the fact of cancer inheritance.

Another obstacle preventing the establishment of the facts of cancer heredity is the idea that since human matings cannot be controlled similarly to those of laboratory animals, the demonstrated facts of heredity do not apply to the human species and may therefore be categorically dismissed. Valuable scientific data along this line might be obtained if it were possible to establish permanent records of periodical examinations of every living person and accurate autopsy findings of all of the dead of three generations. Such data would include matings of double cancerous parentage, double non cancerous parentage, non cancer with hybrid carrier and cancer with hybrid carrier. All animal experimentation

in connection with the study of cancer should be made with carefully conducted biological controls.

It is evident that a cancer resistant mechanism is present in some members of every species. This is manifested by the fact that spontaneous cancers do not arise in every individual in the human family or among lower animals even though they may live under the same conditions and are subjected to the same treatment.

In conclusion the author says "The scientific method of procedure for those who cannot accept the evolutionary evidence is not categorically to deny what they cannot disprove and what has indisputably been found true by many workers, but rather to begin the measures which inevitably must produce scientific data for the investigation of hereditary in man."

HAROLD M CAMP M D

Warren S L and Pearse H E The Repeated Inoculations of Animals with So Called Cancer Organisms' *Am J M Sc* 1926 clxx 820

Two hundred and forty one mice of a strain susceptible to mouse cancer inoculations but in which spontaneous tumors were very rare were given at weekly intervals intracutaneous injections of either the micrococcus of Nuzum or diphtheroids and micrococci obtained from human breast cancers. The inoculations were continued until the animal died or for four months. At the end of four months only fifty mice remained alive. Most of the others had died of septicæmia. The surviving fifty mice were observed for two months longer, or for a total of six months.

Ulcerations of the skin which healed readily occurred with great regularity but none of the animals except one which developed a spontaneous tumor of the liver showed any evidence of a neoplastic growth.

Four rabbits which received weekly injections of both diphtheroids and micrococci for from three to five months showed no signs of malignant disease at the end of six months.

The authors conclude that there was no evidence that any of the organisms used play a prominent role in the etiology of cancer but an indirect role is possible.

J FRANK DOLGHTY M D

Lynch K M The Pathological Diagnosis of Cancer *South M J* 1926 xix 284

Bloodgood J C The Prevention Diagnosis and Treatment of Cancer in Its Earliest Stages *South M J* 1926 xix 87

Horsley J S Modern Tendencies in the Treatment of Cancer *South M J* 1926 xix 292

Lynch The diagnosis of a tumor should be arrived at by consultation between the surgeon and

the pathologist. It should not be made by the surgeon alone unless he is a qualified tissue pathologist. A common erroneous belief is that the malignant cell has a characteristic appearance. If this were true there would be no reason to confuse inflammatory growths with neoplastic growths or benign tumors with malignant tumors. The most difficult phase of the problem lies in the borderline cases in which chronically inflamed tissue does or does not pass into neoplastic growth. Most cured sarcomata and cancers were only inflammatory growths in which the distortion of the structures was so pronounced as to lead to the mistake in diagnosis. Every section of a tumor should be carefully studied. Frequently the risk of a second operation is preferable to that attending a quick frozen section diagnosis.

The exact differentiation of types of malignancy is necessary not only for purposes of study, but immediately for purposes of treatment. The grading of malignancy is at best anatomical but is of some value especially in the site of origin of the tumor is known. In biopsy a suitable specimen must be obtained and all parts of the section carefully examined.

**BLOOD-POOD** Cancer never begins in a healthy spot on the skin. The laity should be taught that such skin lesions as moles, warts, scaly areas and ulcers are potentially dangerous and should be carefully watched. If such areas do not heal they should be excised with a sufficient margin with a knife or cautery. Biopsy is never necessary before operation unless the lesion is large and its complete removal would cause mutilation. Late cancer of the skin is an unnecessary disease due to ignorance and dirt.

Cause of cancer of the mouth lips and tongue are tobacco irritation dirty teeth faulty dentures and neglected pyorrhea. Tobacco the most important cause produces first a leucoplakia. Cancer of the oral cavity is a preventable disease and will disappear when the laity are taught to seek an examination the moment a sore spot on the lips tongue or cheeks is noticed. Various types of lesions of the mucous membrane of the mouth which are not cancer must be recognized and diagnosed. Lesions of the lips and tongue are easily treated surgically and an excision of the lymphatics is indicated even if a resection of the jaw is necessary. Lesions of the base of the tongue are more difficult to treat and require a more radical resection.

In the stomach the chances of overlooking a cancer of the right half of the organ in the operable and curative stage are very slight if a detailed examination is made, but a cancer in the cardiac half may produce no symptom until it is inoperable.

There has been a greater improvement in the results obtained in cancer of the colon than those obtained in cancer of the stomach. Cancers in the right colon come under observation later than those of the left colon because the liquid contents of the right colon can pass through the neoplastic canal without blocking it while solid feces in the left colon are obstructed more easily. X-ray examination of the colon has been of great value in revealing the early diagnosis.

Cancer of the rectum and lower sigmoid can be felt and can also be seen by protoscopic examination. The technique of resection and anastomosis of the colon is a fairly uniform procedure.

HORSLEY Good end results from operations for cancer depend upon a knowledge of the proper surgical technique and of the histological type and extent of the malignancy.

Though Coley's bacterial toxins seem to have cured a few cases of apparently hopeless sarcoma, the hypothesis that the cause of all cancer is bacterial has no foundation in fact.

In recent years the prophylactic treatment of cancer has been greatly emphasized. Undoubtedly this will be beneficial in cancers occurring in regions of the body open to inspection. The removal of causes of irritation such as a sharp tooth and the excision of warts or moles, especially those which are deeply pigmented, serves to eliminate potential cancer.

That a certain percentage of cancers of the stomach arise on a basis of apparently benign peptic ulcers seems generally conceded but there is considerable divergence of opinion as to the percentage of gastric cancers that so originate. Extent of gastric ulcer is therefore a prophylactic treatment for cancer of the stomach.

We must recognize that while cancer is originally local and early excision will effect a cure in a large percentage of cases the malignancy is sometimes so great that by the time the disease becomes evident any form of eradication is practically hopeless. Fortunately, cancers of the latter type constitute probably less than 10 per cent of all cancers.

Dissection with the thermal or electric cautery or immediate cauterization of the raw surfaces made by knife dissection is of great importance. The thermal cautery or electric cautery not only destroys the malignant cells that lie in its course but to some extent seals the lymphatics and small blood vessels that may later absorb any cancer cells left behind.

The influence of irradiation by radium or roentgen ray upon cancerous growths is difficult to evaluate. The majority of radiologists have found that while there are many limitations to this therapy irradiation is of considerable value. No surgeon can accomplish the best work in the treatment of

malignancy unless in many instances he combines with the surgical technique the use of radium or the skillful application of roentgen ray therapy by a competent radiologist. Radiology seems most successful in the cellular malignant tumors, such as lymphosarcoma, in which excision is futile.

As normal tissue has an inhibiting influence upon basal cell cancer, tissue from a distance has been applied over the raw surface left by the excision of an intractable basal cell cancer. Recently ten cases so treated were reported. In all of them the cancer was extensive and had resisted treatment. In several of them, operation and irradiation with radium and the roentgen ray had been tried without avail. In five, there has been no recurrence. In those in which a recurrence developed, it never appeared in the flap or along its margin. It is possible that eventually the resistance of the flap to the cancer may break down, but so far, in all of these cases, it seems to hold back the neoplasm.

CYRIL J. GLASFEL, M.D.

#### GENERAL BACTERIAL, PROTOZOAN, AND PARASITIC INFECTIONS

Chievitz O. General Light Treatment in Surgical Tuberculosis. *Acta radiol.* 1926 v. 143.

Malstrom V. Some Experiences in Connection with Light Treatment in Cases of Surgical Tuberculosis. *Acta radiol.* 1926 v. 153.

CHIEVITZ reviews the indications which have been accepted at the Finsen Institute in Copenhagen for the treatment of surgical tuberculosis. As a rule the treatment is conservative and includes light baths but in cases of tuberculosis of the knee in adults there is a tendency to advocate early resection.

MALSTROM states that in surgical tuberculosis he has employed light treatment combined with sanatorium care, surgical and orthopedic measures and occasionally X-ray treatment. He gives a few case

histories to show what may be accomplished by this combined procedure.

During the early part of the treatment, signs of reaction are often noticed in the tuberculous foci. When this is the case caution is necessary. Contrary to a rather widespread belief, pulmonary tuberculosis and fever are not contra indications to light treatment. Every case of tuberculosis should be given general treatment including light treatment, but it should be left to the surgeon to determine whether surgical and orthopedic measures are advisable in addition.

In conclusion the author states that a scientific investigation of the action of the light bath is greatly to be desired.

Siedamgrotzky. The Roentgen Ray Treatment of Surgical Tuberculosis (Zur Roentgenbehandlung chirurgischer Tuberkulose). *Arch. f. klin. Chir.*, 1906 cxxxix. 114.

In the Charité, Berlin, considerably larger roentgen ray doses are employed in the treatment of lymphatic tuberculosis than in other institutions. However, in a small number of cases—those with persistent fistula—the use of small doses is necessary. The treatment is not confined to the small areas containing the diseased glands; all of the surrounding tissues are irradiated.

Since April 1926, about 600 cases have been treated. Of these, 85 per cent were cured, 14.5 per cent greatly improved, and 0.5 per cent uninfluenced. In contrast to the large number of cases of lymphatic tuberculosis, only 130 cases of other types of surgical tuberculosis were treated with the roentgen ray.

Roentgen ray treatment is the treatment of choice for spina ventosa as well as for all postoperative tuberculous fistulae. In tuberculosis of small cancellous bones and small joints, roentgen ray irradiation is of great aid in combating the disease. Tuberculosis of the larger joints is in general unsuited to roentgen treatment.

VALENTIN (Z)

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## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

### Conditions of the Bones Joints Muscles Tendons, Etc

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*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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## CONTENTS

I.	Index of Abstracts of Current Literature	III VIII
II.	Authors	IX
III.	Editor's Comment	X
IV.	Abstracts of Current Literature	447 511
V.	Bibliography of Current Literature	512 538
VI.	Volume Index	I XXVI



# CONTENTS—DECEMBER, 1926

## ABSTRACTS OF CURRENT LITERATURE

### SURGERY OF THE HEAD AND NECK

#### Head

- SOUTTAR H S ORMOND A W KILNER T P  
POOLEY G H and Others Discussion on  
Plastic Operations on the Face in the Region of  
the Eye 504

#### Eye

- CLAPP C A Metastatic Carcinoma of the Cho-  
roid, with the Report of Two Cases Four Eyes 447  
SCARLETT, H W New Vessel Formation in the  
Vitreous 447  
EVANS, J N Angioscotometry 447

#### Nose and Sinuses

- TURNER, A L, and REYNOLDS T E Suppuration  
in the Ethmoidal and the Sphenoidal Si-  
nuses Cavernous Sinus Thrombosis Death  
Autopsy 447  
FRASER R H Iodized Oil (Lipiodol) in Otolaryn-  
gological Diagnosis—Opaque Injection Study of  
Thirty Five Maxillary Sinuses 447  
SHEA J J The Surgical Treatment of Acute Sup-  
purative Paranasal Sinusitis 448

#### Mouth

- MALCETRE and DARCISSAC Noma with Perfora-  
tion of the Cheek After Mercury Injections  
Fixation of the Jaw Multiple Operations and  
Prosthesis 448

#### Pharynx

- RAZEMON, H A Septum of the Nasopharyngeal  
Space 449

#### Neck

- PUCCIONI L Histological Changes in the Thyroid  
in Animals Injected with Extract of Corpus  
Luteum 449  
PAMPERL R The Genesis of Intralaryngeal  
Struma 449  
HELMHOLZ H F Exophthalmic Goiter in Child  
hood 450  
CATTELL, R B The Elimination of Iodine in the  
Urine in Normal Patients and in Exophthalmic  
Goiter 450  
RICHARDSON E P The Value of Iodine in the  
Surgical Treatment of Exophthalmic Goiter 451  
FRAZIER C H and MOSSER W B A System of  
Control and Treatment in the Toxic Goiter 451

- CLUTE H M Hyperthyroidism Persisting After  
Thyroidectomy The Necessity for Postopera-  
tive Examinations in Toxic Goiters 452  
FRUGONI, C SCIMONE V and COMOLLI A  
Chronic Tetany in Adults and the Transplanta-  
tion of Human Parathyroids by the Method of  
Voronoft 457  
NEW G B Carcinoma of the Larynx 453  
GARIBUY LASSALLE and SENDRAIL The Participa-  
tion of the Fetus and the Thyroid in the Eleva-  
tion of the Basal Metabolism During Pregnancy 486

### SURGERY OF THE NERVOUS SYSTEM

#### Brain and Its Coverings, Cranial Nerves

- ROSANOV W Traumatic Epilepsy and Its Surgical  
Treatment 455  
LINDBLOM, A F On the Effect of Lipiodol on the  
Meninges 455  
BROWN A The Results of Hypoglossofacial  
Anastomosis for Facial Paralysis in Two Cases 455

#### Spinal Cord and Its Coverings

- LEBAUGH F G and MELLIA H The Use of Lipiodol  
in the Localization of Spinal Lesions II The  
Local and Systemic Effects of the Injection of  
Lipiodol into the Subarachnoid Space 456  
VERGA P and DIAZI, A An Unusual Case of  
Racemose Cysticercus in the Spine 456  
SSAMARIN N N The Healing of Aseptic Wounds  
of the Spinal Cord 456

#### Sympathetic Nerves

- COENEN H Syncope Collapse and Shock as Re-  
lated to the Sympathetic Nervous System 457  
FORBES A and COBB S The Physiology of the  
Sympathetic Nervous System in Relation to  
Certain Surgical Problems 458  
RANSON S W The Anatomy of the Sympathetic  
Nervous System with Reference to Sympathec-  
tomy and Ramsection 458  
MCNEALY R W Iliac Sympathectomy 458  
CUTLER E C and FINE J Sympathectomy in  
Angina Pectoris Report of Cases 458  
OKINSEWICZ A and AMOSOV A Bilateral Ex-  
tirpation of the Upper Sympathetic Ganglia  
and Periaxillary Sympathectomy on the Carotids  
in Chronic and Epidemic Encephalitis with the  
Parkinsonian Syndrome 459  
DAVIS, L and KANAVEL A B Sympathectomy in  
Raynaud's Disease Frythromelalgia and Other  
Vascular Diseases of the Extremities 460

## Miscellaneous

- FRANÇOIS J. Lumbosacral Laminectomy in Retention and Incontinence of Urine Due to Spina Bifida Occulta 460

## SURGERY OF THE CHEST

## Chest Wall and Breast

- COVENTRY W. A. The X Ray and Metastasis in Breast Cancer 462

## Trachea Lungs and Pleura

- IGLAUER S. The Use of Injected Iodized Oil in the Roentgen Ray Diagnosis of Laryngeal Tracheal and Bronchopulmonary Conditions 462

- BLALOCK A. HARRISON T. I. and WILSON, C. P. Partial Tracheal Obstruction. An Experimental Study in the Effects on the Circulation and Respiration of Morphinized Dogs 463

- FRITZ I. The Liberation of Pleural Bands Under Fluoroscopic Control During the Treatment of Tuberculosis by Artificial Pneumothorax 463

- HOLMAN F. The Postoperative Pulmonary Abscess 463

- CASTLEN C. R. Pulmonary Abscess 463

- BUSCHMANN T. W. The Surgical Treatment of Lung Abscess 463

- SMIRNOV S. Experiments with Simple and Combined Ligatures of the Pulmonary Vessels 464

- ALEXANDER E. G. and SHERA R. L. Empyema in Children 465

- KRUZAKOV W. The Results of the Operative Treatment of Acute Empyema at the Vladimir Childrens Hospital 465

- KRASNORUJEV T. and FREIDIN I. The Results of the Treatment of Acute Empyema in the Morosov Childrens Hospital 466

- LUNDY J. S. Pulmonary Complications Following Ether and Ethylene Ether Anesthesia 506

## Heart and Pericardium

- LERICHE R. The Treatment of Obliterative Pericarditis and Pericardial Thoracotomy 466

## Esophagus and Mediastinum

- MORLEY J. Diverticula of the Esophagus 466

- POKOTILO W. A Case of Complete Reconstruction of the Esophagus by the Method of Roux 467

## SURGERY OF THE ABDOMEN

## Abdominal Wall and Peritoneum

- VERESKINSKY A. The Healing of Peritoneal Wounds 468

- WILENSKY A. O. and HAHN I. J. Mesenteric Lymphadenitis 468

## Gastro-Intestinal Tract

- JORDAN S. M. and LAHEY I. H. Diverticula of the Alimentary Tract 468

- PECK C. H. Cardiospasm Digital Divulsion of Two Cases 469

- DILORE N. COMTE H. and LABRY P. Gastric Hemorrhages of Obscure Origin 469

- STURTEVANT M. and SHAPIRO I. L. Gastric and Duodenal Ulcer Frequency Number Size Shape Location Color Sex and Age in 7700 Necropsy Records at Bellevue Hospital New York 470

- LAHEY I. H. The Scheme of Management of Gastric and Duodenal Ulcer in this Clinic 470

- CRÉGOIRE I. The Contra Indications to Surgery in Gastric Ulcer 471

- BOHMANSSON G. The Surgical Treatment of Gastroduodenal Ulcers with Particular Regard to the Operative Anatomy and the Post operative Digestion Physiology with a Contribution to the Question of the Surgical Treatment of Acute Ulcer Hemorrhage 471

- WALTON A. J. An Operation for Gastric Ulcers of the Lesser Curve 472

- HOLMES G. W. DRESSER I. and CAMP J. D. Lymphoblastoma Its Gastric Manifestations with Special Reference to the Roentgen Findings 473

- KOHLER H. An Approach to the Duodenum Through the Left Thoracic Cavity in Peritoneal Perforation of the Duodenum 473

- HAMILTON A. J. C. Intersigmoid Hernia 473

- KANTOR J. L. Colon Studies III The Clinical Significance of Ileal Stenosis Its Association with Colitis 473

- CARMAN R. D. and MOORE A. B. The Roentgenological Findings in Ulcerative Colitis 474

- BARGEN J. A. The Etiology and Treatment of Chronic Ulcerative Colitis 474

- TRUEBELL E. D. The Surgical Treatment of Acute Appendicitis 474

- CLUTE H. M. Subphrenic Infection After Appendicitis 475

- HEALD C. L. A Simple Bloodless Operation for Anorectal Prolapse in Children 475

- JACOBS A. W. Carcinoma of the Rectum and Sigmoid Anals of 121 Cases Results of Treatment by Radiation 476

- LOCKHART MUMFERY J. P. and CORDON WATSON SIR C. Discussion on the Complications of Excision of the Rectum 476

- FEED Rectal Lesions Following Gynecological Laparotomies 485

## Liver Gall Bladder Pancreas and Spleen

- COPPER G. H. KODAMA S. and GRAHAM E. A. The Filling and the Emptying of the Gall Bladder 476

- MENTZER S. H. A Clinical and Pathological Study of Cholecystitis and Cholelithiasis 476

- MULLER G. I. Cholecystoduodenostomy 477

- LAHEY I. H. Cholecystectomy 477

- FLOERCAFN H. Recurrent Pain and Discomfort After Operations on the Bile Passages with Particular Regard to Anastomosis Between the Biliary Tract and the Duodenum 478

- RUFANOFF I G Pancreatitis Associated with Cholecystitis Experimental Studies 478
- BERESOW I The Relation of the Change in the Blood Picture Following Splenectomy to the Blood Forming Function of the Spleen 479

## GYNECOLOGY

## Uterus

- BLAND P B The Conservative Treatment of Uncomplicated Retrodisplacement of the Uterus 480
- MIRELS F M Conservative Treatment of Cervical Erosions with Electrocoagulation 480
- WOLFE S A The Clinical and Pathological Features of Puberty Hemorrhage 480
- HITZANDES E Axial Torsion of the Fibromatous Uterus 480
- BARDACHI F The Practical Treatment of Myomata and Hemorrhagic Metropathies with the X Rays 481
- MEYER R and KAUFMANN C The Value of Biopsy 481
- SCHMITZ H HUEPER W and ARNOLD L The Significance of the Histological Malignancy Index for the Prognosis and Treatment of Carcinomata of the Cervix Uteri 482
- PHILIPP E, and GORNICK P The Treatment of Cancer of the Uterus and Vagina at the University Gynecological Clinic, Berlin 483
- BÉCOUTIN Two Deaths Following the Intra Uterine Application of Radium 483
- BOWING H H Carcinoma of the Cervix and Fundus Uteri Treated by Combinations of Surgery Radium and Roentgen Ray 483
- LAHEY F H Removal of the Cervix in Hysterectomy for Benign Lesions 483

## Adnexal and Peruterine Conditions

- PRATT J P and ALLEN E Clinical Tests of the Ovarian Follicular Hormone with a Note on Experimental Work on Monkeys 484
- KELLER The Treatment of Cystic Tumors of the Ovary During Pregnancy and at the Time of Delivery 488

## Miscellaneous

- KAUFFMANN F Cancer Statistics Before, During and After the War 484
- REEB Rectal Lesions Following Gynecological Laparotomies 485

## OBSTETRICS

- Pregnancy and Its Complications
- LUNDH G The Problem of Age and Primiparity 486
- ANDERODIAS and BALARD The Obstetrical History of a Patient Who Had Seven Pregnancies After a Caesarean Section 486
- GARIPUY, LASSALLE and SENDRAIL The Participation of the Fetus and the Thyroid in the Elevation of the Basal Metabolism During Pregnancy 486

- TALBOT J F Toxæmia of Pregnancy 487
- POLAK J O The Present Status of the Toxæmia of Pregnancy 487
- GREENHILL J P Eclampsia at the Chicago Lying In Hospital Immediate and Late Results 487
- DAVIS A B and HARRAR J A Toxæmia of Pregnancy 8,9 Cases with Convulsions at the New York Lying In Hospital 487
- MCNEILE L G and VUWINK J Magnesium Sulphate Intravenously in the Care and Treatment of Pre Eclampsia and Eclampsia 487
- STROGANOFF B The Improved Prophylactic Method of Treating Eclampsia with Comments on the Variations Suggested by Williams Stander Speidel and King 487
- NETZER, F The Treatment of Placenta Prævia 488
- WAGNER H The Cases of Placenta Prævia at the Lying In Hospital in Karlsruhe During the Years 1893 to 1923 488
- KELLER The Treatment of Cystic Tumors of the Ovary During Pregnancy and at the Time of Delivery 488
- GAYET Extra Uterine Pregnancy Elimination of the Fetus into the Bladder and Then by Way of the Urethra Right Pyonephrosis Nephrostomy Ureterolysis 489
- MEYER C Extra Uterine Pregnancy Perforating the Urinary Bladder 490
- NOVAK E Combined Intra Uterine and Extra Uterine Pregnancy with a Report of 76 Cases, Including Two New Cases Observed by the Author 490

## Labor and Its Complications

- KURTZ H The Etiology of Lacerations of the Uterus with Regard to Pathologico Anatomical Conditions 490
- NILDERMEYER The Defects and Dangers of Pubiotomy 491

## Puerperium and Its Complications

- MASTERI N The Pathogenesis of the Puerperal Psychoses 491
- HAGGSTROM P Pus Following Caesarean Section 491
- SCHWARZ O and DIECKMANN W J Anaerobic Streptococci Their Role in Puerperal Infection 492

## GENITO-URINARY SURGERY

## Adrenal, Kidney, and Ureter

- IWANITZAIJ M F The Anatomy of the Renal Pelvis 493
- CROSS W W The Fluoroscope as an Aid to Making Pyelograms 493
- MUCHARINSKIJ M A Subcutaneous Injuries of the Kidney Experimental Investigations 493
- LECOMTE, R M Spontaneous Rupture of Hydro-nephrosis 493
- CARSON W J and GOLDSTEIN A E Experimental Nephrotomies III Nephrotomy without Sutures in Dogs with Single Kidneys 494

**Genital Organs**

- BELFIELD W T and IOLNICK H C Roentgenography and Therapy with Iodized Oils 494

**Miscellaneous**

- McKAY H W The Application of Modern Urological Diagnostic Methods in Pediatrics Ca e Reports 494
- PRIGGS W T and MAXWELL F S Leucoplakia of the Urinary Tract with Reports of One Vesical and Two Renal Cases 494

**SURGERY OF THE BONES JOINTS MUSCLES TENDONS****Conditions of the Bones Joints Muscles Tendons Etc**

- TAVERNIER A Form of Bony Lesion Intermediate Between Myelomatoma and Bone Cysts 496
- SORREL E Localized Tuberculous Arthritis of the Wrist in Children 496
- JORG J M Congenital Contracture of the Palm 496
- MAYER M and TESTU C Alternating Scoliosis 497

**Surgery of the Bones Joints Muscles Tendons Etc**

- SORREL E The Repair of Bony Cavities in Children 497

**Fractures and Dislocations**

- PLISSON and POUVILLON Total External Luxation of the Elbow 498
- COUNTY and ALGLAVE The Treatment of Imperfectly Consolidated Humeral Fractures 498

**SURGERY OF BLOOD AND LYMPH SYSTEMS****Blood Vessels**

- BOMACH I The Innervation of the Blood Vessel of the Lower Extremity 499
- CRICKIEW A M The Cure of a Gigantic Traumatic Arteriovenous Aneurism of the Abdominal Aorta and the Inferior Vena Cava by the Moore Corradini Method 499
- CHAVIGNY F MENARD and JAUR The Part Played by the Coagulability of the Blood in the Development of Postoperative Phlebitis 499
- TOLTIKOFF D F Changes in the Blood Pressure Under the Influence of Operations 499
- BRUN G I The Treatment of Peripheral Vascular Disturbances of the Extremities 500

**Blood Transfusion**

- BERSHOW I The Relation of the Change in the Blood Picture Following Splenectomy to the Blood Forming Function of the Spleen 479
- ODINOW D F Changes in the Viscosity of the Blood under the Influence of Anesthesia and Operation 501
- NISLER E J The Effect of Operation upon the Change in the Coagulability of the Blood 501

- SHAKAJAN P G The Effect of Operation and Narcosis on the Calcium Content of the Blood 501
- MELIKOW P G The Change in the Catalase Index of the Blood Under the Influence of Surgical Operations 501
- RAPPOPORT I L The Changes in the Number of Leucocyte and the Leucocyte Formula During the Postoperative Period 502
- SHOKOLOFF W I and GLADYREWSKY N L The Changes in the Number of the Erythrocytes and Blood Platelets During the Postoperative Period 502
- GABRIEL W B A Simplified Technique for the Transfusion of Blood by the Kimpton Brown Method 502
- KORGANOWA MUELLER F S The Causes of Reactions Following Blood Transfusion 503
- Lymph Vessels and Glands**
- WILENSKY A O and HAHN L J Mesenteric Lymphadenitis 468

**SURGICAL TECHNIQUE****Operative Surgery and Technique Postoperative Treatment**

- SOUTTAR H S ORMOND A W KILNER T I POOLEY G H and Others Discussion on Plastic Operations on the Face in the Region of the Eye 504
- BALLANCE SIR C Some Experiments on the Conduction and Fate of a Ligature Made from the Parietal Peritoneum of the Ox When Implanted in Living Tissue 505

**Anæsthesia**

- ODINOW D E Changes in the Viscosity of the Blood under the Influence of Anæsthesia and Operation 501
- SHAKAJAN P G The Effect of Operation and Narcosis on the Calcium Content of the Blood 501
- LUNDY J S Balanced Anæsthesia 505
- LUNDY J S Pulmonary Complications Following Ether and Ethylene Ether Anæsthesia 506

**PHYSICO-CHEMICAL METHODS IN SURGERY****Roentgenology**

- FRASER R H Iodized Oil (Lipiodol) in Otolaryngological Diagnosis—Opaque Injection Study of Thirty Five Maxillary Sinuses 447
- LINDBLOM A F On the Effect of Lipiodol on the Meninges 455
- EDAUH I G and MELLA H The Use of Lipiodol in the Localization of Spinal Lesions II The Local and Systemic Effects of the Injection of Lipiodol into the Subarachnoid Space 456
- COVENTRY W A The X Ray and Metastasis in Breast Cancer 462
- IGLAUER S The Use of Injected Iodized Oil in the Roentgen Ray Diagnosis of Laryngeal Tracheal and Bronchopulmonary Conditions 462

- HOLMES G W DRESSER, R and CAMP J D  
Lymphoblastoma Its Gastric Manifestations,  
with Special Reference to Roentgen Findings  
CARMAN, R D, and MOORE A B The Roentgeno-  
logical Findings in Ulcerative Colitis  
BARDACHZI, F The Practical Treatment of Myo-  
mata and Hemorrhagic Metropathies with the  
X Rays  
BOWING H H Carcinoma of the Cervix and Fun-  
dus Uteri Treated by Combinations of Surgery  
Radium and Roentgen Ray  
CROSS W W The Fluoroscope as an Aid to Mak-  
ing Pyelograms  
BELFIELD W T and ROLNICK H C Roentgenog-  
raphy and Therapy with Iodized Oils  
HUECK, H Irradiation Treatment of Sarcoma  
MATTHEW W L Some Practical Considerations in  
the Application of Deep Roentgen Therapy to  
the Treatment of Malignant Disease

## Radium

- BÉGUIN Two Deaths Following the Intra Uterine  
Application of Radium  
POWING, H H Carcinoma of the Cervix and Fun-  
dus Uteri Treated by Combinations of Sur-  
gery, Radium and Roentgen Ray  
JACOBS A W Carcinoma of the Rectum and Si-  
moid Analysis of 121 Cases Results of Treat-  
ment by Radiation  
DESJARDINS A U Radiotherapy for Lympho-  
blastoma

## MISCELLANEOUS

- Clinical Entities—General Physiological Conditions  
COFREN H Syncope Collapse and Shock as Re-  
lated to the Sympathetic Nervous System  
TRUESDELL E D The Surgical Treatment of  
Acute Appendicitis  
BLOTNEK H and FITZ R On Diabetic Gangrene  
with Particular Reference to the Value of In-  
sulin in Its Treatment  
MINOT G R Lymphoblastoma  
DESJARDINS A U Radiotherapy for Lympho-  
blastoma  
LUMSDEN T Immunity in Relation to Trans-  
plantable Malignant Tumors  
YOUNG J The Earlier Recognition of Cancer  
FOWLER L H Malignant Epithelial Neoplasms  
Carcinoma and Epithelioma Occurring in Per-  
sons Under 6 Years of Age

## Surgical Pathology and Diagnosis

- MEYER R and KAUFMANN C The Value of  
Biopsy  
SCHMITZ H HUEPER W and ARNOLD L The  
Significance of the Histological Malignancy  
Index for the Prognosis and Treatment of  
Carcinomata of the Cervix Uteri  
NASAROFF W M The Healing of Skin Wounds  
GIRGOLAFF S S Newer Findings with Regard to  
Wound Healing



**Genital Organs**

- BELFIELD W T and ROHNICK H C Roentgenography and Therapy with Iodized Oils 494

**Miscellaneous**

- McKAY H W The Application of Modern Urological Diagnostic Methods in Pediatrics Case Reports 494
- BRIGGS W T and MAXWELL T S Leucoplakia of the Urethral Tract with Reports of One Vesical and Two Renal Cases 494

**SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS****Conditions of the Bones, Joints, Muscles, Tendons, Etc**

- TAVERNIER A Form of Bony Lesion Intermediate Between Myeloplasmata and Bone Cysts 496
- SORRELL E Localized Tuberculous Arthritis of the Wrist in Children 496
- JORGES J M Congenital Contracture of the Palm 496
- MAYER M and TESTA C Alternating Scoliosis 497

**Surgery of the Bones, Joints, Muscles, Tendons, Etc**

- SORRELL L The Repair of Bony Cavities in Children 497

**Fractures and Dislocations**

- LISSEON and ROUVILLOIS Total External Luxation of the Elbow 498
- COURTY and ALGLAVE The Treatment of Imperfectly Consolidated Bimalleolar Fractures 498

**SURGERY OF BLOOD AND LYMPH SYSTEMS****Blood Vessels**

- BOMASCH I The Innervation of the Blood Vessels of the Lower Extremity 499
- CRIGORJEW A M The Cure of a Gigantic Traumatic Arteriovenous Aneurysm of the Abdominal Aorta and the Inferior Vena Cava by the Moore Corradi Method 499
- CHAVIN EMEYARD and JAIR The Part Played by the Coagulability of the Blood in the Development of Postoperative Phlebitis 499
- TOLSTIKOFF D F Change in the Blood Pressure Under the Influence of Operations 499
- BROWN G F The Treatment of Peripheral Vascular Disturbances of the Extremities 500

**Blood Transfusion**

- BERFMAN I The Relation of the Change in the Blood Picture Following Splenectomy to the Blood Forming Function of the Spleen 499
- ODINOW D I Change in the Viscosity of the Blood under the Influence of Anesthesia and Operation 501
- NISSEN, E J The Effect of Operation upon the Change in the Coagulability of the Blood 501

- SAKAJAN, I G The Effect of Operation and Narcosis on the Calcium Content of the Blood 501
- MELNIOW P G The Change in the Catalase Index of the Blood Under the Influence of Surgical Operations 501
- KAPPOPORT I L The Changes in the Number of Leucocytes and the Leucocyte Formula During the Postoperative Period 502
- SHOKOLOFF W I and GLADYREWSKY N L The Changes in the Number of the Erythrocytes and Blood Platelets During the Postoperative Period 502
- GABRIEL W B A Simplified Technique for the Transfusion of Blood by the Kimpton Brown Method 502
- KORGANOWA MUELLER F S The Causes of Reactions Following Blood Transfusion 503
- Lymph Vessels and Glands**
- WILENSKY A O and HALL L J Metastatic Lymphadenitis 468

**SURGICAL TECHNIQUE****Operative Surgery and Technique Postoperative Treatment**

- SOUTTAR H S ORMOND A W KILNER T P JOULEY G H and Other Discussion on Plastic Operations on the Face in the Region of the Eye 504
- BALLANCE SIR C Some Experiments on the Conduction and Fate of a Ligature Made from the Parietal Peritoneum of the Ox When Implanted in Living Tissue 505

**Anæsthesia**

- ODINOW D I Changes in the Viscosity of the Blood under the Influence of Anesthesia and Operation 501
- SAKAJAN P C The Effect of Operation and Narcosis on the Calcium Content of the Blood 501
- LUNDY J S Balanced Anæsthesia 503
- LUNDY J S Pulmonary Complications Following Ether and Ethylene Ether Anæsthesia 506

**PHYSICO-CHEMICAL METHODS IN SURGERY****Roentgenology**

- FRASER R H Iodized Oil (Lipiodol) in Otolaryngological Diagnosis—Opaque Injection Study of Thirty Five Maxillary Sinuses 447
- LINDBLOM A F On the Effect of Lipiodol on the Meninges 455
- ERLACH F G and MELL H The Use of Lipiodol in the Localization of Spinal Lesions II The Local and Systemic Effects of the Injection of Lipiodol into the Subarachnoid Space 456
- COVENTRY W A The X-Ray and Metastasis in Breast Cancer 461
- IGLWILR S The Use of Injected Iodized Oil in the Roentgen Ray Diagnosis of Laryngeal Tracheal and Bronchopulmonary Conditions 462

## AUTHORS

## OF THE ARTICLES ABSTRACTED IN THIS NUMBER

- Alexander E G 46,  
 Alglave 498  
 Allen E 484  
 Amosov A 459  
 Anderodias 486  
 Arnold L, 482  
 Ballard 486  
 Ballance, Sir C, 505  
 Bardachzi F, 481  
 Barga J A 414  
 Bégouin 483  
 Belfield W T, 494  
 Beresow I, 479  
 Black A 463  
 Bland P B, 450  
 Blotner, H, 508  
 Bohmanson, G, 471  
 Bomasch I 499  
 Bowing H H, 483  
 Briggs W T, 494  
 Brown, A 455  
 Brown G E 500  
 Buschmann, T W, 463  
 Camp J D 473  
 Carman R D, 474  
 Carson W J, 494  
 Castlen C R 463  
 Cattell R B, 450  
 Chauvin 499  
 Clapp, C A 447  
 Clute H M 45 475  
 Cobb S 458  
 Coenen H 457  
 Comolli A 452  
 Comte H 467  
 Copher G H 476  
 Courty 498  
 Coventry W A 462  
 Cross W W 493  
 Cutler E C 458  
 Darciassac 448  
 Davis A B 487  
 Davis I 460  
 Dazza A 456  
 Defore A 469  
 Desjardins A U 509  
 Diekmann W J 49  
 Desser R 473  
 Dibaugh F G 456  
 Esmenard, 499  
 Evans J N 447  
 Fine J, 458  
 Fitz K, 508  
 Floercken H 478  
 Forbes, A, 458  
 Fowler L H, 510  
 Fraugot, J 460  
 Fraser, R H 447  
 Frazier, C H 451  
 Freidin I 466  
 Fntz, R, 463  
 Frugoni C 452  
 Gabriel, W B, 502  
 Garpuv, 486  
 Gayet 480  
 Gurgoloff S S 511  
 Gladyshevsky, N L 502  
 Goldstein A E 494  
 Gordon Watson, Sir C 476  
 Gormick P 483  
 Graham E A 476  
 Greenhill J P 487  
 Grégoire R 471  
 Grigorjew A M 499  
 Haggstrom P 491  
 Hahn L J 468  
 Hamilton A J C 413  
 Harrar J A 487  
 Harrison T R 463  
 Heald C L 475  
 Helmholtz H F 450  
 Hitzandés E 480  
 Holman L 463  
 Holmes G W 413  
 Hueck H 507  
 Hueper W 482  
 Iglauer S 462  
 Iwanitzky M I 493  
 Jacobs A W 416  
 Jaur 499  
 Jordan S M 468  
 Jorge J M 496  
 Kanavel A I 460  
 Kantor J L 413  
 Kauffmann I 484  
 Kaufmann C 451  
 Keller 458  
 Kellner T P 504  
 Kodama S, 476  
 Kohler H 413  
 Korganowa Mueller I S 503  
 Krasnobajev, T 466  
 Krutov W 465  
 Kurtz H 490  
 Labry R, 469  
 Lahey F H 468 410 477, 483  
 Lassalle 486  
 LeComte R M 493  
 Lerche R 466  
 Lindblom A F, 425  
 Lockhart Mummery J P, 476  
 Lumsden T 509  
 Lundh G 486  
 Lundy J S, 505 506  
 Masien N, 491  
 Mattuck W L 507  
 Mauclore 448  
 Maxwell E S 494  
 Mayer M 497  
 McKay H W 494  
 McNeal R W 458  
 McNeile L G 487  
 Melikow P G 501  
 Mella H 456  
 Mentzer S H 476  
 Meyer C 490  
 Meyer R 451  
 Mikels I M 480  
 Minot G R 505  
 Moore A B 474  
 Murrey J 466  
 Mosser W B 451  
 Muchaninsky M A 493  
 Muller G P 477  
 Nasaroff W M 510  
 Netzer F 488  
 New C B 453  
 Nidermeyer 491  
 Nisner E J 501  
 Novak E 490  
 Odnov D E 501  
 Okinewu A 459  
 Ormond A W 504  
 Pamperl R 449  
 Peck C H 469  
 Philipp C 483  
 Plisson 408  
 Pokotilo W 461  
 Polak J O 487  
 Pooley G H 504  
 Pratt J P 484  
 Puccioni L 449  
 Ranson S W 458  
 Rappoport P L 50  
 Razemon, H 449  
 Reeb 485  
 Reynolds F E 447  
 Richardson E P 451  
 Rolnick H C 494  
 Rosanov W 455  
 Rouvillos 498  
 Rufanoff I G 478  
 Scarlett H W 447  
 Schmitz H, 482  
 Schwarz O 49  
 Scimone V 452  
 Sendrail 486  
 Shapiro L L 470  
 Shea J J 448  
 Sherk R L 465  
 Smirnov S 464  
 Sorrel E 496 491  
 Souttar H S 504  
 Ssakanjan P G 501  
 Ssamarin N N 456  
 Sokoloff W I 502  
 Stroganoff B 487  
 Sturtevant M, 410  
 Talbot J E 487  
 Tavernier, 496  
 Testu C 497  
 Tolstikoff D F 499  
 Truesdell E D 474  
 Turner A L 447  
 Verescinsky A 468  
 Verga P 456  
 Vruwink J 487  
 Wagner H 488  
 Walton A J 472  
 Wilensky A O 488  
 Wilson C P 463  
 Wolfe S A 480  
 Young J 510

## EDITOR'S COMMENT

IN an interesting study of two large series of cases of lymphoblastoma by Minot of the Huntington Memorial Hospital, Boston (p 508) and Desjardins of the Mayo Clinic at Rochester (p 509) one is struck by the similarity between the two groups, both as to the duration of the disease and the results of treatment. A further parallelism between two types of lymphoblastoma—Hodgkin's disease and lymphosarcoma—is brought out by Desjardins who notes that in a series of cases reported in 1923 the average duration of the two conditions when untreated was almost identical, and that in a second later series the average duration of the disease was thirty-eight months in the Hodgkin's group and twenty-eight months in the lymphosarcoma group. Both authors agree that radiotherapy does not notably affect the average duration of life in cases of lymphoblastoma, although it is of marked value in alleviating distressing symptoms and in individual instances it has shown a marked effect on the disease process.

The management of goiter cases as carried out at the University Hospital in Philadelphia and the importance of follow-up studies in thyroid cases are discussed in two helpful papers by Frazier and Mosser (p 451) and by Clute of the Lahey Clinic in Boston (p 452). The fact that Frazier and Mosser have been able to secure the maximal benefit of iodine by the administration of 10 minims daily for from seven to ten days is interesting in view of the fact that larger doses, administered for a considerably longer period of time are frequently required in other localities to secure remissions which will permit of operation.

The interest in the surgery of the sympathetic system is reflected in a number of papers which are reviewed in this month's issue of the *ABSTRACT*. Brown of the Mayo Clinic (p 455) and Davis and Kinnel (p 460) agree on the necessity of removal of the lumbar sympathetic chain if interruption of the vasoconstricting impulses to the blood vessels of the lower extremity is indicated. Ranson (p 458) emphasizes the anatomical explanation of this fact in pointing out that the innervation of the blood vessels of the extremities is through the spinal nerves. Cutler and Fine's report of seven cases of sympathectomy for angina pectoris is a helpful contribution to the literature on the surgical relief of angina.

Recognition of the importance of gastritis as a factor in the production of gastric ulcer and as a potential source of disaster in the surgical management of ulcer is again stressed by Grigore (p 471) and Bohmansson (p 471). The latter expresses the opinion that restoration of normal gastric mobility and of the normal pathway through the duodenum by the Billroth I operation gives the best clinical results in cases of gastric ulcer. Walton on the other hand (p 472) advocates wide wedge resection for ulcers located on the lesser curvature with temporary occlusion of the pylorus and posterior gastroenterostomy. He suggests that the gastro-enterostomy opening be made as close as possible to the greater curvature and so placed that one half of the opening lies proximal and the other half distal to the line of excision of the ulcer. Lahey (p 410) emphasizes the diagnostic importance of the medical management of gastric ulcer particularly if carcinoma is suspected. He believes that if symptoms are not relieved and if the X-ray defect and occult blood are still present after a week or two radical operation should be performed.

Rufanoff's experimental studies in acute pancreatitis and the part played by cholecystitis in its development (p 478) emphasize the importance of the combination of obstruction and infection. He believes that acute hæmorrhagic pancreatitis usually develops after infected bile enters the pancreatic tissue in the presence of pancreatic duct obstruction. He mentions the value of anastomosis of the bile passages to the gastro-intestinal tract in the presence of chronic pancreatitis with compression of the common duct—a point emphasized by Miller's report of three cases of cholecystoduodenostomy (p 477) in cases of common duct obstruction.

Mentzer's interesting study of cholecystitis and cholelithiasis (p 476) indicates that one of the important factors stressed by Rufanoff in the etiology of pancreatitis—infection of the bile passages—is present much more frequently than is generally considered. The fact that in 66 per cent of 612 consecutive autopsies there was gross evidence of gall bladder disease and in 75 per cent pathological changes on microscopic examination emphasizes again the major importance of infection of the bile passages in the production of morbidity.

# INTERNATIONAL ABSTRACT OF SURGERY

DECEMBER, 1926

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### EYE

Clapp C A Metastatic Carcinoma of the Choroid with the Report of Two Cases Four Eyes  
*Am J Ophth* 19 6, 3 s ix 513

Metastatic carcinoma of the choroid is rare but is probably not always reported. The author reports two cases. In one, a breast had been removed nine years previously, and in the other a medullary carcinoma had been removed from a breast two and a half years previously. Neither case was seen until after detachment had taken place. In one case an eye was removed, sectioned and subjected to a complete pathological examination.

VIRGIL WESCOTT, M D

Scarlett H W New Vessel Formation in the Vitreous  
*Am J Ophth* 19 6, 3 s ix 521

New blood vessel formation in the vitreous is usually attributed to hæmorrhage or exudate due to lues or tuberculosis. The author reports a case in which new vessels were found arising from the disk and extending out into the vitreous in the form of a twig of a tree, the usual signs of hæmorrhage and exudate were absent, and the general physical examination was negative. However, the patient had had some blurring of vision previously, which had been attributed to intra ocular hæmorrhage.

VIRGIL WESCOTT, M D

Evans J N Angioscotometry  
*Am J Ophth* 19 6, 3 s ix 489

This is the most enthusiastic report that has appeared on the subject of plotting the scotoma caused by the shadow of blood vessels. Others have expressed doubt as to the possibilities of this type of investigation or have reported failures. The author describes his method of examination which is quite different. He makes the significant statement, "The width of the scotoma, either localized or general did not necessarily correspond to the apparent width of the vessel mapped."

The theoretical considerations are discussed at length, and errors in previous work are explained.

VIRGIL WESCOTT, M D

### NOSE AND SINUSES

Turner A L and Reynolds F E Suppuration in the Ethmoidal and Sphenoidal Sinuses. Cavernous Sinus Thrombosis. Death Autopsy.  
*J Laryngol & Otol* 1926, xli, 447

The authors report a case of cavernous sinus thrombosis, basal leptomeningitis, and subperiosteal orbital abscess. The findings made at autopsy and at microscopic examination of serial sections through the diseased area indicated that inflammation of the mucosa of the ethmoidal and sphenoidal sinuses extended to the walls of these sinuses, inducing a chronic necrosis and in penetrating the walls infected the red marrow. Later, it passed by way of the diploic veins to the cavernous blood sinus, giving rise to acute septic thrombosis. The septic thrombus in the blood sinus then extended along the tributary veins into the orbit, dura mater, and pia mater, and an acute purulent leptomeningitis developed.

In a review of hospital material it was found that spontaneous intracranial complications occurred in 0.6 per cent of the cases of accessory sinus disease and in 2.2 per cent of cases of aural disease. The source of the infection was the frontal sinus in 61 per cent, the sphenoid sinus in 17 per cent, the ethmoids in 14 per cent, and the maxillary sinus in 3 per cent. In descending order of frequency, the most common complications were brain abscess, acute leptomeningitis and infective thrombosis of the cavernous blood sinus.

MANFORD R. WALTZ, M D

Fraser R H Iodized Oil (Lipiodol) in Otolaryngological Diagnosis—Opaque Injection Study of Thirty Five Maxillary Sinuses  
*J Michigan State M Soc* 1926, xiv, 10

Fraser reports thirty five cases in which a mixture of one part of iodized oil and two parts of petrola

tum was used in the roentgenological study of the maxillary sinuses. The sinus was punctured with a needle, all discharge present was washed out and air was then introduced to force out all of the solution. The head was then turned so that the ostium was uppermost and enough of the oil mixture was injected to fill the cavity. When the cavity was full, resistance was felt or the pharyngo-scope showed the oil coming through the ostium. With the head in the same position lateral and postero-anterior stereograms were made.

In disease the mucoperiosteum widens. The cavities to be considered in the diagnosis are the cavity in the bone, the cavity as filled, and the filling defect. In the cases of suppurative maxillary sinusitis which are reviewed the mucoperiosteum thickening ranged up to 11 mm. When there is no tendency toward hyperplasia any plan of continuous aeration and drainage gives relief. A filling defect of 60 per cent decreases the likelihood of recovery under conservative surgical treatment. In chronic hyperplastic maxillary sinusitis the maximal uniform filling defect capable of resolution without curettage is probably under 40 per cent.

The method described may be used to determine the presence of abnormalities of the antrum or its invasion by dental cysts and other pathological processes, the type of the pathological process in acute inflammation, the type of treatment necessary and what must be accomplished in chronic hyperplasia.

MANFORD R. WALTZ, M.D.

Shea, J. J. The Surgical Treatment of Acute Suppurative Paranasal Sinusitis. *J. Am. M. Ass.* 1926 lxxvii 162.

The author points out that the surgical treatment of acute suppurative paranasal sinusitis is of the emergency type and should be carried out with as little trauma as possible. Drainage is best obtained with rubber tubing. In children the maxillary sinus is most frequently involved. In maxillary sinusitis Shea obtains drainage by inserting a knife or trocar into the antrum under the inferior turbinate and as far back as possible, then enlarging a window with a rasp to accommodate a catheter, inserting the catheter into the antrum over a trocar and using suction or irrigation.

The severe pain of an acute frontal sinusitis is due to the vacuum that is formed behind the escaping discharge. This may sometimes be overcome by alternate suction with gentle pressure or by passing a frontal sinus catheter through the frontal duct or resecting the anterior end of the middle turbinate. In cases in which rupture is feared Shea uses a Lynch radical frontal operation incision, opens the sinus with a small burr, passes a catheter into the sinus and allows the incision to remain open. Because of the danger of osteomyelitis of the frontal bone the anterior wall should not be attacked during the acute stage.

Sphenoiditis in children is diagnosed from headache and the X-ray findings. Shea recommends for

such cases irrigation with Dean's antral irrigating apparatus.

Acute ethmoiditis is rare in children but when it occurs it usually ruptures into the orbit and requires external drainage. In adults the cells should be punctured and drained by suction or irrigation. The middle turbinate should not be touched. In the after-treatment the channels should be kept open and protein silver salts employed.

This report was discussed by Lynch, Skillern, Lewis, Shambaugh and Pratt. Most of the views expressed were not in accord with those of the author, the consensus of opinion being that operation is rarely necessary in acute sinusitis in children.

MANFORD R. WALTZ, M.D.

## MOUTH

Mauclair and Darcissac. Noma with Perforation of the Cheek After Mercury Injections. Fixation of the Jaw. Multiple Operations and Prosthesis. (Noma avec perforation de la joue après injections mercurielles, construction de la mâchoire, opérations multiples et prothèse.) *Bull. et mém. Soc. nat. de chir.* 1926 lvi 53.

The authors report the case of a woman who following a series of mercury injections developed a severe mercurial stomatitis resulting in a perforation of the cheek measuring 5 by 3 cm. and complete constriction of the jaw. The right ascending ramus of the inferior maxillary was fixed by cutaneous cicatricial bands outside and by mucous bands inside. The tongue was fixed to the floor of the mouth and on the right side to the internal surface of the horizontal ramus. There was lateroversion of the inferior maxillary. The patient was in a condition of serious cachexia, very emaciated and unable to speak. She was fed through the perforation in the cheek. A period of six months was necessary to render her condition sufficiently good for operation.

As the ascending ramus was so firmly fixed by cicatricial bands and retractile myositis of the internal and external masseter muscles, this fibrous block was left intact and a Rizzoli osteotomy was performed in front of it to establish a neoarthrosis of the horizontal ramus. Fibrous tissue was interposed between the joint surfaces. Darcissac's apparatus with a craniofacial support (shown in an illustration) was applied to keep the teeth apart and to correct the laterodeviation of the inferior maxillary. The lateroversion was corrected in six months.

Internal debridement was then performed in several stages to free the mucous bands on the inner surface of the maxilla and liberate the tongue from the floor of the mouth. To prevent recurrence rubber pads were placed between the freshened surfaces. The perforation in the cheek was then closed by Italian autoplasty with the use of a flap from the inner surface of the arm. Since the operation there has been considerable retraction of this flap which causes asymmetry when the mouth is opened but

the patient is now able to open her mouth to an extent of 4 or 5 cm without lateral deviation and the relation of the two maxillæ to each other is normal. The patient's speech can be understood and her general health is good.

AUDREY G. MORGAN, M.D.

### PHARYNX

**Razemon H.** A Septum in the Nasopharyngeal Space (Le cloisonnement du cavum) *Arch. internat. de laryngol.* 19 6, xxix 396

Since 1908 the author has noted that patients operated upon for adenoids or deviations of the septum sometimes continue to complain of nasal obstruction after the operation. Careful examination in such cases has shown that the nasal septum was continued into the nasopharynx, dividing the latter more or less completely into two spaces and decreasing its capacity and the height of the choanæ. The septum consists entirely of bone or of bone and a fibrous membrane.

Moure and Brindel state that occasionally the vault of the nasopharynx is not plane or slightly concave and that the space may be divided from in front backward by the vomer which forms a sort of median ridge. Comparative anatomy shows that in anthropoid apes the pharyngeal tubercle is replaced by a ridge, and in certain other species of animals a membranous septum is found in the nasopharynx.

Razemon has seen the septum described in twenty-eight patients including adults and infants and members of both sexes. He finds that removal of the septum facilitates breathing and improves the general condition. He has operated upon twenty patients ranging in age from 9 to 33 years and has never noted any ill effects from the operation. He performs it under local anesthesia or ethyl chloride anesthesia supplemented by local anesthesia.

Brief histories of eight typical cases are reported.

AUDREY G. MORGAN, M.D.

### NECK

**Puccioni L.** Histological Changes in the Thyroid in Animals Injected with Extract of Corpus Luteum (Modificazioni istologiche della tiroide di animali iniettati con estratti di corpo luteo) *Riv. ital. di ginec.* 19 6 iv 273

The author performed experiments on animals to determine the changes brought about in the thyroid by the intraperitoneal injection of extract of corpus luteum. The experimental and control animals were of the same weight and age. The corpus luteum of cows was used in most cases but in a few the extract was obtained from human ovaries removed at operation. An amount of the extract equal to 0.50 gm. of fresh organ was given daily for from twenty to thirty days.

The weights of the experimental and control animals and the weights of their thyroids are given in tables. The animals lost weight rapidly even

after they had begun to eat a normal amount of food following the initial anorexia. The thyroids increased considerably in weight and presented hyperemia and dilatation of the vessels. There was an apparent decrease in the size of the individual vesicles which was due not so much to a true decrease as to an increase in the size of the cells which tended to become cylindrical and occupy a large part of the vesicle. There were numbers of new formed vesicles with walls made up of cylindrical epithelium.

The colloid was decreased in amount and density and was not homogeneous as it is normally, but finely granular. Many vesicles showed epithelial cells scattered in the colloid and others becoming detached from the basal membrane. In many areas the cell wall between two vesicles could be seen in the process of breaking down and allowing the two vesicles to coalesce into one. There was a considerable increase in the fuchsinophilic granules both in the body of the cells and in the colloid. The lipid granules were also increased. These are phenomena which indicate hyperfunction of the thyroid.

The author takes up the question as to whether this hyperfunction is due to a specific action of the corpus luteum hormone or to a toxic action of the extract by virtue of its being a foreign protein. There are physiological and clinical facts which indicate that thyroid function is stimulated by corpus luteum and other facts which indicate that the thyroid like other endocrine glands is capable of hyperfunction in toxic or toxic infectious conditions of the organism. Puccioni concludes that the hyperfunction of the thyroid following the injection of extract of corpus luteum is due partly to specific corpus luteum hormones and partly to the toxic action of the extract itself.

AUDREY G. MORGAN, M.D.

**Pamperl R.** The Genesis of Intralaryngeotracheal Struma (Zur Genese der intralaryngeotrachealen Struma) *Ztschr. f. Hals, Nasen u. Ohrenheilk.* 1926 xiv 173

The author reviews forty-one cases of intra laryngotracheal struma including one of his own and forty reported in the literature.

This condition is characterized clinically by dyspnoea and attacks of suffocation and occurs most frequently in women of middle age. Its cause is a tumor covered by normal mucosa which is located in the upper respiratory passages. Under certain circumstances the diagnosis may be made before operation by laryngoscopic and X-ray examination.

The treatment of choice is laryngofissure or tracheofissure followed by extirpation of the tumor and the introduction of a cannula. The cannula may be removed after eight days. The author warns against treatment with iodine and endolaryngeal and endotracheal procedures.

In Pamperl's case the diagnosis was not made before operation although the laryngoscope

revealed below the vocal cord a hemispherical tumor the size of a nut which was covered by normal mucosa extended out from the posterior wall of the trachea and in the X ray picture caused a bulging forward of the posterior tracheal wall. The patient was a woman 30 years of age who stated that since she was 6 years old she had had periodic attacks of dyspnea chiefly in the spring and fall and who showed a light enlargement of the upper pole of the left lobe of the thyroid. She had no difficulty in swallowing.

As resection of the upper portion of the left lobe of the thyroid failed to relieve the dyspnea the author performed a low tracheotomy. With his finger inserted through the incision he then palpated a soft tumor the size of a small nut under the vocal cords on the right side. He accordingly prolonged the incision to the larynx introduced a cannula incised the mucosa, extirpated the tumor and then sutured the mucosa. The tumor had a broad base and measured 3 by 5 by 1.5 cm. Histological examination showed it to consist of a nodular struma containing colloid and showing some hyaline degeneration. The extratracheal struma presented the same picture.

The author does not agree with von Bruns that this type of tumor is due to the liberation of embryological germinal cells. He believes with Paltau and Bunde that it is caused by the infiltration of thyroid tissue into the larynx and trachea. In support of his theory is the fact that the base of the tumor is broad. If von Bruns's theory were correct the neoplasm would probably have a narrow base and would be of a more polypoid character.

JASTRAH (7)

#### Helmholz H F Exophthalmic Goiter in Childhood *J Am M Is 1916 lxxviii 157*

Between January 1 1921 and March 1 1926 thirty cases of exophthalmic goiter in children 14 years of age or under were observed in the Mayo Clinic. The duration of the symptoms which varied from six months to eight years indicated that frequently the condition is not recognized early or its seriousness is not appreciated.

Nervousness was given as the first symptom in thirteen cases and as the second symptom in seven cases. Exophthalmos was definite in twenty five and in one of the remaining five the characteristic stare was present. The stare is fully as important as the exophthalmos and may be followed by exophthalmos. Tachycardia was present in every case. Other symptoms noted were enlargement of the thyroid bruit over the neck hyperhidrosis tremor loss of weight polyphagia weakness of the quadriceps muscles gastrointestinal disturbances and dyspnea.

Metabolic rates were determined in all but two cases. The first determinations were frequently high but as soon as the child became used to the test satisfactory readings were obtained. The metabolic rates were markedly increased. The effect

of iodine in reducing the basal metabolic rate was very striking. In a few cases the improvement was so marked after the administration of iodine that thyroidectomy was unnecessary. In some cases the administration of iodine was continued after operation.

The diagnosis of exophthalmic goiter in childhood is based on (1) symptoms indicating an increase in metabolism such as tachycardia excessive perspiration and loss of weight in spite of an adequate food intake (2) toxic symptom such as nervousness hyperirritability fatigue exophthalmos and the gastrointestinal crises (3) enlargement of the thyroid and a local bruit especially in the region of the superior thyroid artery (4) increased metabolic rate and (5) the reduction of the rate and rapid disappearance of toxic symptoms after the administration of large doses of iodine.

Hyperthyroidism may occur in children as a result of hypertrophy and hyperplasia of the thyroid and after the administration of large doses of desiccated thyroid or thyroxin. The introduction of the use of iodine by Plummer in the treatment of exophthalmic goiter has been a great advance. This treatment has resulted in surprising improvement in the patient's condition and has eliminated the necessity of practically all preliminary operative procedures.

Of twenty four patients operated on two died one in crisis twenty four hours after the operation and the other from bronchopneumonia one week after the operation.

#### Cattell R B The Elimination of Iodine in the Urine in Normal Patients and in Exophthalmic Goiter *Boston M & S J 1926 cxv 69*

Although relatively large quantities of iodine are given in the treatment of exophthalmic goiter only a small fraction of the drug can be stored in the thyroid gland. Iodine is readily absorbed from all mucous membranes. After single doses it is completely absorbed in five hours. Most of it is eliminated in the urine and feces but small amounts are found in the saliva tears sweat milk and other body fluids and effusions. Only a small amount is stored in the thyroid unless the gland is hyperplastic.

After single doses of iodine the elimination in the urine begins in from ten to twenty minutes and reaches its maximum in from one and one half to three hours. From 60 to 80 per cent is excreted in twenty four hours. Traces persist for several days.

Determinations of the effect of iodine were made by the author in the cases of six normal persons and forty nine persons with exophthalmic goiter. Thirty minims of Lugol's solution representing approximately 250 mgm of iodine were given daily.

In the subjects without goiter no unfavorable effects from the drug were observed. There was no change in the metabolic rate or the pulse rate. The amount of iodine excreted in the urine varied considerably from day to day but in general the daily

total output tended to increase on a constant dosage

In the cases of exophthalmic goiter the output of iodine in the urine was less than in the cases of normal persons especially after operation. A sharp rise during the first few days after the institution of the treatment was followed by a gradual fall and maintenance of a lower level.

The normal thyroid contains about 15 to 20 mgm of iodine. It therefore seems improbable that the daily administration of 30 m. of Lugol's solution is necessary for the desired effect. In view of reports of occasional unfavorable effects from large doses and of favorable effects from much smaller doses, and in view of the large quantity of the unutilized drug which is excreted almost immediately in the urine the smaller dosage appears to be preferable. Ten drops of Lugol's solution daily has given satisfactory results. However, it is possible that in the use of larger dosage more of the iodine may be taken in to the gland temporarily with some benefit. In the light of our limited knowledge of the subject at the present time, it seems necessary to give an excess of the drug.

DOV K. HUTCHENS, M.D.

**Richardson, E. P.** The Value of Iodine in the Surgical Treatment of Exophthalmic Goiter. *Boston M. & S. J.* 1926 cxiv, 1066

The administration of iodine in exophthalmic goiter is usually followed within a day or two by a lessening of the restlessness and emotional instability. Slowing of the pulse and a fall in the metabolic rate become apparent as a rule within three days and reach their maximum within from eight to fourteen days. The vasomotor symptoms, the characteristic stare, and the nervous tension diminish. The patient feels better and has a tendency to gain weight. Apparently in no case is the condition made worse by a short period of this treatment.

Cattell has shown a remission of the hyperplastic changes in the gland and its return toward a resting state. Chemical examination shows an increase in its iodine content. Although the administration of iodine is not a satisfactory treatment for exophthalmic goiter, it brings about a remission of the condition so that operation can be performed with less danger of a stormy postoperative toxic reaction.

The indiscriminate use of iodine in the cases of patients with large thyroids is to be avoided as it may do harm rather than good. In adenomatous goiter iodine may stimulate the gland to toxic activity and thereby increase the operative risk and produce organic damage.

The patient should be seen both before and after iodine is given in order that an accurate diagnosis of the type of goiter may be made. As the effect of the withdrawal of the iodine cannot be predicted, serious toxicity may develop if the patient is not seen again.

For the past three years, in the Massachusetts General Hospital, Boston, Lugol's solution has

generally been administered in a dosage of from 15 to 30 minims daily and operation performed when the maximum iodine effect has been obtained.

Richardson emphasizes the fact that although the administration of iodine represents a decided advance in the surgical treatment of exophthalmic goiter, it does not raise the patient's resistance to normal and therefore great care is necessary in judging the seriousness of the individual case and in determining whether a single or multiple stage operation is indicated.

ANTHONY F. SAVA, M.D.

**Frazier C. H. and Mosser W. B.** A System of Control and Treatment in the Toxic Goiter. *Ann. Surg.*, 1916 lxxv, 51

At the University Hospital, Philadelphia every patient with goiter is registered in a Thyroid Clinic, the officers of which are representatives of the medical surgical, and X-ray services. Such an organization has the advantage of composite opinion, protects the patient from individual prejudices, and constitutes a means by which impartial statistics may be accumulated.

It is believed that at the present time surgical treatment offers the patient with exophthalmic goiter or toxic adenoma by far the best hope of recovery. Medical treatment is much less effective and X-ray treatment is curative in only a small number of cases.

In the University Hospital every patient with toxic goiter is subjected to a careful study by representatives of the various specialties and after the completion of a routine investigation in the Thyroid Clinic is treated according to the consensus of opinion of the composite group. It is the custom also to have the internist from the Thyroid Clinic see every case at frequent intervals both before and after operation particularly for the care of any cardiac, renal or gastro intestinal complication.

Every toxic patient is treated by the anoci association technique and given absolute physiological rest. Mild sedatives are prescribed as indicated. In selected cases iodine is administered as a specific. In the anoci association technique, the patient is kept in ignorance of the fact that he is to be operated upon or is not informed of the time of operation. Mental and psychic disturbances are avoided. As a result he withstands the operation better and the immediate postoperative reaction is less severe.

Physiological rest is one of the most beneficial pre operative measures. It causes a gradual decline in the pulse rate and a corresponding decline in the basal metabolism.

In cases of exophthalmic goiter the pre operative administration of iodine is a routine measure. Its effect is remarkable, but is transient and the maximal improvement caused by it can be determined only by clinical observation. In general, this is reached after the administration of 5 minims of Lugol's solution twice a day for from seven to ten days. After this period iodine is either of no value or harmful. Beneficial results from Lugol's solution



an seldom be duplicated if operation is delayed and no case of exophthalmic goiter has been permanently benefited by iodine. Iodine is not curative. It is of value chiefly because by bringing about a transient improvement, it affords an opportune time for surgical intervention.

In cases of toxic adenoma iodine is often beneficial but the advisability of its routine administration is rendered doubtful by unfavorable reactions in some cases. Iodine should never be given in a case of non-toxic or toxic adenoma unless the patient is in a hospital being prepared for operation. Its indiscriminate use in cases of non-toxic adenoma has alarmingly increased the incidence of induced hyperthyroidism.

In the Thyroid Clinic the date of operation is selected after the patient has been at absolute physiological rest for several days at a time when the pulse rate, basal metabolism and body weight have finally become stationary following steady improvement.

The operation of choice is bilateral subtotal thyroidectomy but various factors often demand a series of operations for the desired effect. While iodine lessens the postoperative reactions it does not entirely prevent unfavorable reactions in well advanced or complicated cases. In young persons with moderately advanced disease who react favorably to rest and iodine the complete operation is uniformly successful.

In the more advanced cases of older persons with a high basal metabolism, emaciation and cardiac incompetence who do not react promptly to physiological rest and iodine the choice of primary operation rests between unilateral lobectomy or hemithyroidectomy and bipolar ligation. If the reaction is only moderate following hemithyroidectomy the second lobe is removed after forty-eight hours. When the reaction is severe the second operation is postponed if necessary for several weeks until the weight, basal metabolism and pulse are satisfactory.

Ligation is reserved for very advanced cases. This procedure gives temporary but often remarkable improvement. At the end of ten weeks the patient returns for the second stage operation which may be a subtotal thyroidectomy or a hemithyroidectomy. Occasionally unilateral polar ligation followed by ligation of the opposite pole then by hemithyroidectomy and finally by subtotal thyroidectomy are the various steps found necessary.

In cases which are regarded as inoperable the injection of boiling water or alcohol has been found of temporary benefit.

After operation the anoxic association technique is continued until the immediate shock has subsided. Water is given liberally and morphine is administered at regular intervals for twenty-four hours. The administration of iodine is continued until the danger period is passed. Postoperative thyrotoxicosis is rare. If a moderate toxic reaction occurs it is controlled by the administration of

large quantities of fluids, an increase in the quantity of iodine, blood transfusion and the application of ice bags.

Since the use of iodine the mortality in the Thyroid Clinic has been materially reduced. Previous to 1920 the mortality in toxic cases averaged 2.77 per cent whereas since that time there have been only two deaths in 262 operations a mortality of only 0.8 per cent. DON K. HITCHENS, M.D.

Clute, H. M. Hyperthyroidism Persisting After Thyroidectomy. The Necessity for Postoperative Examinations in Toxic Goiters. *Surg. Clin. N. Am.* 1926, vi, 691.

It is believed by the workers at the Lahey Clinic that all patients treated for primary hyperthyroidism should be subjected to repeated clinical examinations and metabolism determinations during the first year after thyroidectomy. In at least 95 per cent of such cases both clinical and metabolic evidence of cure will be found from two to four months after the operation or much earlier.

The presence of clinical evidence of persisting hyperthyroidism and an elevated basal metabolic rate four months after the operation generally means that too large a piece of hyperplastic thyroid tissue is still present. Lugol's solution may be given in such cases but it must be borne in mind that any improvement in the symptoms that may follow will be only temporary. In Clute's opinion hyperthyroidism persisting six months after operation is a positive indication for the further removal of thyroid tissue. STANLEY J. SELIGER, M.D.

Frugoni, C., Scimone, V. and Comolli, A. Chronic Tetany in Adults and the Transplantation of Human Parathyroids by the Method of Voronoff. (*Tétanie chronique des adultes et transplantation de parathyroïdes humaines selon la méthode de Voronoff*). *Presse méd.* 1926, xxxiv, 355.

The authors report a case of tetany in a man 21 years of age. Two hours after a meal of green prunes five years previously the patient was seized with acute gastro-enteritis associated with an attack of tetany lasting for three days and characterized by painful cramps of the hands, painful rigidity of the entire arm with flexion of the forearm and abduction of the upper arm, spasmodic rigidity of the lower limbs with the feet in the club foot position, contraction of the abdominal muscles, respiratory difficulty, opisthotonos, diplopia and locking of the jaws. At times the tongue was wounded by the teeth.

Five months later another attack occurred and thereafter the attacks were so frequent that the patient was often in the hospital. Sometimes they were separated by intervals of only two or three hours. One night there were four. They varied from slight ones to very serious ones with general convulsions and transitory loss of consciousness. Occasionally the patient would fall and injure his face.

Examination showed moderate exophthalmos and nystagmus. When the patient looked to the right, the left eye showed internal strabismus, and when he looked to the left the right eye showed a similar deviation. Pressure over the point of exit of the fifth cranial nerve caused convergence of the eye balls and a diminution of vision. The lips were swollen and one tooth was broken. The Chvostek sign was markedly accentuated. At times the patient complained of dysphagia and a slight spasm of the glottis with a sensation of suffocation. The thyroid was negative. Tapping of the muscles of the thorax caused energetic contractions. The Trousseau phenomenon was very active. Flexion of the extended lower limb on the pelvis as in the maneuver of Lasègue caused a painful contraction of the entire limb and especially of the foot. The blood Wassermann test was positive.

The reaction to pilocarpine was very active and that to adrenalin was moderate. The electrical excitability of the facial nerve was 0.8 to 0.9 ma. and that of the cubital and median nerves 0.4 to 0.3 ma. Three determinations of the blood calcium showed 9.2, 8.7, and 9 mgm per 100 c cm.

During the three months the patient remained in the hospital he had numerous attacks of tetany, many of which were accompanied by true epileptiform seizures. The intravenous injection of calcium chloride (10 c cm of a 10 per cent solution) on eight successive days lessened them temporarily. Vigorous antileptic treatment was ineffective. The condition was diagnosed as chronic tetany and epilepsy.

Under local anesthesia a parathyroid graft taken from an 18 year-old girl operated upon for diffuse parenchymatous goiter was transplanted into the tunica vaginalis of the testicle by the method of Voronoff. This caused a sudden cessation of the tetany and relieved the epilepsy.

The authors believe that the chronic tetany was due to either a luetic lesion of the parathyroids or a primary sclerosis of those glands based on degeneration or secondary hemorrhage. From the sixteenth to the twenty fifth days after the operation the tetany recurred, but then definitely ceased. The persistence of the Chvostek sign though it was greatly diminished indicated a remaining latent parathyroid insufficiency that the graft had not compensated. The patient regained his general health and the ability to do active work. From fifteen to twenty five days after the operation the electrical excitability of the facial nerve was 0.8 to 0.9 ma. and that of the median and cubital nerves 0.4 to 0.3 ma. Fifteen days after the operation the blood calcium was 9.4 mgm per 100 c cm. Five days later it was 10.8 mgm and eighteen days later 10.9 mgm. The pharmacodynamic tests remained as before the operation. On palpation a month after the operation the graft seemed to be unchanged. After five months it still retained its primary form and size and was fixed to the tissues.

The authors state that when there is no surgical material available for such a graft, the parathyroid

of a person killed by trauma or those of anthropoid apes may be used.

Comoli considers parathyroid homografts preferable to heterografts. He obtains his grafts from stillborn infants or persons killed in accidents. In the cadaver, the parathyroid is easily confused with a drop of fat. At operation it is distinguished by its consistency and color. Blood staining masks the tissues. Comoli places the graft with fat in a sterile glass box, transfers it at once to the operating room and transplants it immediately into the tunica vaginalis of the right testicle. Under local anesthesia a 7 cm incision is made which enters the tunica vaginalis. The testicle is then exteriorized and the parathyroid fixed with fine catgut on the mesial side of the testicle in the scarified mesial cul de sac of the vaginalis near the epididymis. The catgut fastens only the small masses of connective tissue and fat surrounding the parathyroid, it does not traverse the glandular tissue. After closure of the operative wound the graft on the testicle is perceptible on palpation.

WALTER C. BURKET, M.D.

New G. B. Carcinoma of the Larynx. *Minnesota Med.* 1926, 17, 365.

In spite of educational measures and propaganda concerning carcinoma many patients with extensive inoperable carcinoma of the larynx are still being treated without a laryngoscopic examination. Such a state of affairs is lamentable, especially because the diagnosis of carcinoma of the larynx is usually not difficult and the results of early surgical treatment of the lesion are excellent.

Epithelioma of the larynx should be removed surgically. In the individual case the operation is determined by the situation, extent and malignancy of the lesion and the patient's general condition. The grading of epitheliomata formulated by Broders is a definite advance in determining the treatment advisable for such growths in the larynx as well as elsewhere in the body. The microscopic grading will sometimes determine whether the operation should be a thyrotomy or a laryngectomy. A low grade epithelioma of the vocal cord may be cured by thyrotomy, whereas if the lesion proves to be an epithelioma graded 4 microscopically, laryngectomy may be preferable.

New performs all major laryngeal operations under paravertebral anesthesia, as advocated by Labat, Meeker, and Lundy. This is a distinct advance over the previous general or combined general and local anesthesia. The anesthesia in most cases has been perfect, from both the operator's and the patient's standpoint.

When thyrotomy and excision are selected a median incision is made. The hyoid bone is then split with bone forceps and its ends are retracted. The thyroid cartilage is sawed through with a small handsaw, the wings being held with special laryngeal forceps. The growth is then removed down to the cartilage. After tying of the larger vessels the wound

is closed. The cartilage itself is not sutured but the thyroid hyoid membrane and the perichondrium are sutured with catgut.

When laryngectomy is chosen a two stage operation is performed according to the technique used by Judd.

In the first stage a median line incision is made from the symphysis of the jaw to the manubrium. The hyoid bone is divided with bone forceps and the cut ends are retracted. The isthmus of the thyroid is divided and the larynx and trachea are skeletonized. A piece of iodoform gauze is packed laterally to the trachea just below the cricoid down to the esophagus as is done by Dinsmore but is not carried back of the trachea. This gives as much protection as is obtained when the gauze is carried back of the trachea and is associated with less risk. The margin of the skin is sutured to the trachea with chromic catgut about the second tracheal ring at a

point just below where later a tracheotomy will be performed. The rest of the wound is closed loosely.

After from four to five days the trachea is opened by a parallel incision made usually just below the cricoid cartilage without injuring the tracheal rings. The iodoform packs on either side of the trachea are not changed.

From eight to ten days after the first stage the larynx is removed from below upward and the pharynx is closed with two rows of chromic catgut sutures care being taken to secure accurate approximation. The trachea is sutured to the skin with silk worm and dermal sutures and the rest of the wound is completely closed with catgut and silkworm sutures. No drains are employed. A gauze dressing is applied over the upper part of the wound to support the pharynx.

The operative mortality in these cases is very low and the end results in the early cases are good.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS, CRANIAL NERVES

Rosanov, W. Traumatic Epilepsy and Its Surgical Treatment (Die traumatische Epilepie und ihre chirurgische Behandlung) *Verhandl d 16 russ Chir Kong* Moscow 1925 p 312

Eighty cases of traumatic defects of the skull are reported, of which thirty five required operation for cortical epilepsy.

The nature of this condition and the reason why it develops in some cases and not in others with apparently the same type of injury remain undetermined in spite of the world war.

The author believes that the endocrine glands have something to do with the occurrence of Jacksonian epilepsy.

In Rosanov's cases the operative treatment is preceded by a systematic ionization treatment of the region of the scar on the skull. This is carried out with a 1 per cent solution of sodium iodide at the cathode which is pressed directly against the scar. The anode moistened with physiological sodium chloride solution, is held against the opposite area on the skull. This treatment is intended to produce a diminution, vascularization, and vacuolization of the scar by which the surgical removal of the scar will be made easier.

The cranioplasty is done at a second sitting eight days after the first. It is performed preferably with fragments from the tibia which are transplanted with the periosteum and subcutaneous fat; the latter being placed directly upon the brain.

In an experience of many years the author had a failure from this method in only 17 per cent of the cases.

In two cases the epilepsy was favorably influenced by the transplantation of parathyroids from a goat.

PETROV (Z)

Brown, A. The Results of Hypoglossofacial Anastomosis for Facial Paralysis in Two Cases. *Surg Gynec & Obst* 1916 xlii 608.

Brown states that in the treatment of facial paralysis the best results as regards nerve continuity and psychic control are obtained from anastomosis of the hypoglossal and facial nerves. Frazier and Spiller give the three desiderata as: (1) restoration of the normal contour of the face during rest; (2) restoration of voluntary motion in the muscles; and (3) restoration of emotional expression. The close relation between the cortical centers of the hypoglossal and facial nerves makes these nerves the logical ones to be used.

The author reports two cases in which he employed this method of anastomosis. The hypo-

glossal nerve was brought to the facial nerve external to the posterior belly of the digastric. The descending hypoglossi were sectioned and the central end sutured to the peripheral end of the cut hypoglossal. The result was fair.

The operation is but the beginning of the treatment. Complete cooperation of the patient is essential. Massage once a day and faradism twice a day after the tenth day are useful aids. Early signs of returning function may appear in from two to three months. After this time, constant practice before a mirror is essential. The restoration of the tongue may be less satisfactory but is of less importance.

The first case reported was that of a woman 43 years of age who developed facial paralysis on the left side after the removal of a sarcoma of the middle ear followed by radium treatment two years previously. Two months after hypoglossofacial anastomosis she began to notice signs of returning function after faradic stimulation. A series of photographs show the patient before the operation and about five, eleven, and seventeen months later. These demonstrate good restoration of facial symmetry and voluntary motion with quite good return of emotional expression. Improvement is continuing.

The second case was that of a girl 19 years of age who after a mastoid operation one year previously developed paralysis of the portion of the left facial nerve supplying the angle of the mouth and lower face. The facial anastomosis performed was of the same type as that in the first case. After three months signs of beginning return of function appeared and have continued to date. The article includes photographs of the patient before operation and six months later. The results seem excellent.

The anatomical relations of the operation and the probable mechanism of regeneration and restoration of function are shown in illustrations.

ALBERT S. CRAWFORD, M.D.

## SPINAL CORD AND ITS COVERINGS

Lindholm, A. F. On the Effect of Lipiodol on the Meninges. *Acta radiol* 1916 v 179.

The subdural injection of relatively large quantities of lipiodol into rabbits gave rise to an acute leptomeningitis which was evidenced histologically by an infiltration of cells (mainly leucocytes) and usually subsided in two or three weeks. In one of seven rabbits it resulted in death. After the subsidence of the inflammation no histological changes were to be noted even when large quantities of lipiodol remained.

After the intralumbar injection of from 5 to 10 ccm of lipiodol in man acute leptomeningitis

develops with a marked increase of lymphocytes in the lumbar fluid. The meningeal symptoms subside within two weeks after the injection.

**Ebaugh F G and Mella H** The Use of Lipiodol in the Localization of Spinal Lesions II The Local and Systemic Effects of the Injection of Lipiodol into the Subarachnoid Space 4m J M Sc 1926 clxxii 117

The authors studied thirteen patients in an effort to determine

1 The local effects of the injection of lipiodol—mainly the duration of the aseptic meningitis if any as determined by spinal fluid cell changes quantitative protein determinations and irritative phenomena found in the neurological examination

2 The general systemic effects of the injection

3 The length of time required for the lipiodol to pass from the cisterna magna to the lumbar sac and whether any lipiodol is held back by the posterior roots folds or pockets of the arachnoid thereby leading to an inaccurate diagnosis of subarachnoid block

They obtained definite evidence that an aseptic meningitis was produced following the introduction of lipiodol into the spinal subarachnoid space. This reaction however was of transient duration all of the patients recovering within a period of three days. The occurrence of frequent bloody taps in lumbar puncture after the injection appeared to indicate a generalized congestion of the vessels. Four of the patients complained of pain in the legs and in three cases there was a slight increase in the temperature following the injection of the drug. Nausea and headache were present in one case and a leucocytosis was noted in four cases. Most of the patients showed some general restlessness. In two cases there was evidence indicating that the lipiodol was held back by the posterior roots of the lumbar region. In two cases in which there was no subarachnoid obstruction the lipiodol reached the end of the lumbar sac a few seconds after the injection.

STANLEY J SEIGER M D

**Verger P and Dazzi A** An Unusual Case of Raccoon Cysticercus in the Spine (Di un raro caso di cisticercosi racconica localizzazione spinale) *Poli clin Rome* 1917 xviii 27 med 63

The case reported in this article was that of a man of 50 years who had been addicted since early youth to alcohol and sexual excesses. At the age of 21 years he had gonorrhoea and at the age of 26 years he contracted syphilis. When he was 34 years old he began to have lancinating pains in the lower limbs and later these were associated with a feeling of great weakness. Subsequently there was sexual debility which progressed to complete impotence. In the fall of 1923 constant urinary incontinence began. The patient was then so weak that he was scarcely able to stand.

Examination revealed the Argyll Robertson sign, Romberg's sign, a zone of hypæsthesia limited to the

mammillary region, ataxia of the lower limbs and absence of the patellar and Achilles tendon reflexes.

During the last few months of his life the patient had mental disturbances greatly resembling those of paresis viz delusions, absence of emotional reactions, failure to recognize his condition and psychomotor agitation. The clinical diagnosis was tabo paresis.

Autopsy revealed a few cysticercus cysts scattered in the lumbar and dorsal portions of the spine, a cystic mass in the cauda equina and degeneration of the posterior cord.

There were certain differences between the symptoms in this case and those of syphilitic tabes. The first disturbances of sensation were limited entirely to the lower limbs and remained so limited for twenty years while in tabes the affection of the lower limb is generally preceded by involvement of the first dorsal roots with girdle pain in the upper part of the thorax and pain along the inner surface of the arms and the prodromal stage is much shorter.

In the author's case there was atrophy of the muscles of the lower limbs which could not have been due to the reduced state of nutrition since if the latter had been the cause the other muscles of the body would have been affected. The degeneration of the posterior cords was irregular. This degeneration and that of the anterior cords was due to the localization of the cysts. The localization of the disturbances in the lower limbs and the genital and vesical disturbances were caused by the cysts in the cauda equina. The amyotrophy of the limbs was due to atrophy of the cells of the anterior horn.

Tabes is not an independent disease but a clinical syndrome due to degenerative atrophy of the cord which may be caused by other toxins as well as those of syphilis. In alcoholism, nicotineism, ergotism and pellagra there may be symptoms similar to those of tabes.

The case reported is the third case described in which tabes was associated with spinal cysticercus. While the mental signs may have been due to the intoxication caused by the parasite the syphilis from which the patient had suffered may have been partly responsible.

AUDREY G MORGAN M D

**Ssamarin N N** The Healing of Aseptic Wounds of the Spinal Cord (Ueber die Heilung aseptischer Wunden de Rueckenmarks) *Verhandl d 16 russ Chir Kongr Moskau* 1925 p 117

In experiments made on forty-four rats and rabbits partial section of the spinal cord was done and followed by tamponade to prevent the formation of a hematoma. In the rabbits fibroblasts were found in the cicatrix after three or four days and resorption of cysts after seven days. The regeneration of the nerve fibers was an irregular process. It first appeared after three weeks but after from thirty to sixty days the regenerated nerve fibers disappeared. After another sixty days it again appeared and as the process of resorption was then less pronounced the regenerated nerve fibers did not disappear. After

five months rather numerous regenerated nerve fibers and even nerve bundles were found traversing the scar. The nearer the center of the cord, the greater the number of regenerated fibers. Regenerated nerve fibers were seen also in the degenerated areas of the spinal cord above and below the scar. The gray substance showed a tendency to regenerate, but only to a slight degree.

KORNMAN (Z)

### SYMPATHETIC NERVES

Coenen H. Syncope Collapse and Shock as Related to the Sympathetic Nervous System (Ohnmacht Kollaps und Schock in ihren Beziehungen zum vegetativen Nervensystem) *Muenchen med Wchschr*, 19 6 LXVI 1 66

The author first briefly describes the signs of syncope, a transient state of unconsciousness ushered in by cerebral anæmia and representing a reaction to psychic stimuli of various types. A habitual tendency to such a condition can be no more denied than the probability there is also a nervous factor or a personal predisposition. Most probable in such cases is increased lability of the vascular system.

With regard to the pathogenesis and the site of the syncope in the brain the author states that many considerations refute the teaching that the cause is a vascular spasm in the cerebral cortex. Among these is the fact that motor and sensory cortical phenomena do not usher in the attack but appear only after syncope has fully developed. Moreover Reichardt's investigations indicate that the brain stem and not the cortex is the seat of consciousness—a location which is near the sympathetic centers for vascular tonus, sweat secretion, pupillary reaction and sleep all of which are predominant phenomena in syncope. Coenen says Syncope is not a cortical but rather a basilar sympathetic syndrome of the brain stem called forth by psychic reflex stimulation of the large sympathetic central station situated in that region.

Collapse i.e., collapse of the vital functions the symptoms of which Coenen describes has as its cardinal sign a disturbance of the circulation. Cardiac weakness too great exertion, disease of the heart muscle valvular failure and the action of toxins on the heart muscle may cause collapse. Somewhat different is the hæmorrhagic collapse following the loss of blood in this condition the force of the heart is at first not affected and the vessels are contracted by increased activity of the vaso-motor center, but soon the heart becomes empty and the organic circulation suffers. Consciousness is lost last and is recovered even before the pulse can be detected. In infectious diseases collapse depends more upon vasomotor failure than cardiac weakness with a marked fall in the arterial pressure the organism bleeds itself into the flaccid and maximally dilated splanchnic area. In toxic collapse (pancreatic necrosis, tissue injury, burns, anaphylactic collapse) the marked decrease in the blood

pressure is to be ascribed to central vascular injury. The drop in the temperature in collapse cannot be explained by circulatory weakness and the fall in the blood pressure alone. Diehl has shown that in different intoxications the fall in the temperature is independent of the drop in the blood pressure. Therefore a direct central poisoning must be the cause. This would explain also the sweating and the facial expression in this condition.

Shock occurs very suddenly. Its causes are a severe nervous irritation of a peripheral sensory origin (severe injuries) or a central psychic origin (strong mental perturbation). The chief symptom of this condition in which the sympathetic nervous system is affected is a rapid fall in the blood pressure. Its neurogenic etiology and instantaneous onset differentiate shock from collapse even though the syndromes of the two are very similar. The author discusses the many theories of shock. The e are difficult to evaluate because in the foreign literature the picture is not clearly defined and collapse symptoms are included in it. The author rejects the cardiac chemical and apæmia intoxication theories believing that the blood vessels are of chief importance in the symptoms. His theory is based upon the assumption that a too strong centripetal nervous impulse 'jumps across' to the sympathetic system paralyzes the vascular system and thereby lowers the blood pressure and diminishes all vital functions. As proving the correctness of this assumption he cites the Goltz palpation experiments and the division of the splanchnic nerve by Ludwig and Lyon. The resulting bleeding into the splanchnic area and the drop in the arterial blood pressure caused the menacing symptoms in the circulatory system which constitute the syndrome of shock. In just what manner the vascular paralysis occurs has not yet been satisfactorily explained. Abdominal shock from mechanical causes in man Coenen attributes to a central segmental vascular reflex rather than a purely peripheral cause. The stimulus leading to abdominal shock in man may be mechanical but also chemical (perforation of an intestinal ulcer) the consequent perforation peritonitis at first causes the primary reflex paralysis of the abdominal vessels through the secondary toxic vascular paralysis and in this manner shock changes to collapse with out any change in the external appearance. In Goltz's experiments the abdominal phenomena run parallel with contractions of the vessels of the extremities so that abdominal shock differs from the other types of shock which are characterized by general vascular paralysis.

Shock may be caused by severe pain in any part of the body if a number of peripheral nerves are subjected to great irritation. Blunt superficial tissue injuries are therefore more quickly followed by shock than circumscribed sharp or penetrating injuries. When during long drawn out mutilating operations a sudden and marked drop in the temperature occurs it may be associated with the marked reflex fall in the blood pressure which characterizes

shock but it is possible also that the peripheral stimulus has paralyzed the temperature center

In addition to the quiet or torpid shock there is the restless shock denied by many characterized by great unrest anxiety and delirium which can not be attributed to loss of blood Closely related to this is the psychic or emotional shock with disturbances of consciousness (Bonhoeffer) or without such disturbances (Baelz) For this type of neuro pathic shock a nervous anlage is necessary such for example as increased vascular lability It has not been proved that psychic shock can cause death in the case of a healthy person On the ground of Mueller's claim that the vascular center lies near the center governing temperature and sweating in the midbrain it may be assumed that the localization of shock is in the midbrain in the central gray matter of the third ventricle

The author next discusses briefly the treatment of these conditions In syncope this consists simply in placing the patient in a horizontal position In cardiac collapse heart stimulants are to be used In vascular collapse in the infectious diseases the latter would be of no value and it is necessary to raise the blood pressure by increasing the central tonus by the use of caffeine camphor or strychnine and the peripheral tonus by the use of adrenalin or hypophysin In collapse following hemorrhage the subcutaneous or intravenous administration of 1 liter of Ringer's solution or better blood transfusion is the sovereign remedy In true wound shock new trauma must be avoided and the blood pressure must be raised before any intervention is undertaken Heat and morphine are also indicated Although theoretically the treatment of shock and collapse are different in actual practice difficulties are met since the symptoms of the two conditions are so similar

At the basis of all of these syndromes there are very complex organic processes which require careful clinical investigation particularly from the point of view of the knowledge recently gained concerning the sympathetic nervous system JANSSEN (Z)

Forbes A and Cobb S The Physiology of the Sympathetic Nervous System in Relation to Certain Surgical Problems *J Am Med Ass* 1926 lxxxvi 1884

Ranson S W The Anatomy of the Sympathetic Nervous System with Reference to Sympathectomy and Ramisection *J Am Med Ass* 1926 lxxxvi 1886

FORBES and COBB do not accept the hypothesis of Langelaan that in voluntary muscle there are two separate mechanisms—a contractile mechanism and a plastic mechanism They believe that this theory was due to a misunderstanding of the work of previous investigator and that therefore Hunter and Royle's work has an unsound basis Hunter assumed Langelaan's distinction to be well founded and endeavored to show that the plastic element in tonus is eliminated by sympathetomy while the contractile element is not disturbed On the basis of

Hunter's theory Royle developed the operation of ramisection by which he asserts that he has relieved certain cases of spastic paralysis

In recent experiments on seventeen cats subjected to sympathetomy either before or after decerebration, Forbes and his co-workers found that the rigidity of decerebration was essentially unaffected by the operation On the other hand Kuntz and Kerper seem to have successfully repeated Hunter's work Orbeli reports however that simultaneous stimulation of the sympathetic and somatic nerves adds nothing to contraction until fatigue develops but that with the onset of fatigue sympathetic stimulation increases the contraction evoked by somatic stimulation The sympathetic effect shows a much longer latency than muscular contraction evoked by motor nerve stimulation a latency which approximates that of the action of the sympathetic nerves on the heart

These observations suggest that the nerve impulses reaching the muscle fibers by this channel act on them in a different manner from the ordinary somatic motor nerve impulses Apparently they do not stimulate the muscle that is they do not cause contraction Yet it is conceivable that at the sympathetic nerve endings a chemical effect of some sort is produced which alters the state of the muscle and in some way counteracts the tendency to fatigue It is conceivable also that the loss of this influence may explain the observations of Hunter Royle Kuntz and Kerper and others who have found changes in tonus following sympathetomy

In any case Forbes and Cobb believe that there is no justification for distinguishing two components contractile and plastic in the tonus of mammalian skeletal muscle and that the effect of ramisection on spasticity has been overestimated

RANSON first reviews the anatomy of the sympathetic nervous system On the basis of Edgeworth's work on the dog his own on the cat and that of Jonnesco and Ionesco on the human subject he concludes that the innervation to the heart is from the middle and inferior left cervical ganglia No explanation is offered for the fact that avulsion of the left superior cervical ganglion alone often gives relief from angina pectoris

It is pointed out that the innervation to the blood vessels of the extremities is by way of the spinal nerves which it follows to the subcutaneous tissues where branches are given off for the innervation of the arterioles Therefore stripping of the larger vessels is an illogical operation and the beneficial results that occasionally follow such operations remain unexplained IEO M DAVIDOFF MD

McNealy R W Periarterial Sympathectomy *J Am Med Ass* 1926 lxxxvi 1968

Cutler E C and Fine J Sympathectomy in Angina Pectoris Report of Cases *J Am Med Ass* 1926 lxxxvi 1972

MCNEALY states that periarterial sympathetomy has had a stimulating influence on research regard

ing the sympathetic or autonomic nervous system and has served to weld a closer bond between the neurologist and the surgeon. However, he is not prepared to accept either the theory or the practice of the present operation. His own experience as well as that of other workers suggests to him that the operation should be discarded. He believes that further study of the sympathetic nervous system and of the pathogenesis of various vascular disturbances should be made before operative procedures are resorted to. Periarterial sympathectomy carries with it some technical difficulties and may be accompanied by serious mishaps such as wound infection, perforation of the artery, secondary hemorrhages, false aneurism, thrombosis of the artery and gangrene of the extremity. Ramisection and ganglionectomy have a still greater operative risk.

CUTLER and FINE report seven cases of sympathectomy for angina pectoris. These show that a single or bilateral extirpation of the superior cervical ganglion or of the entire cervical chain and first dorsal ganglion will frequently give temporary complete or partial relief and often will fail. The complete operation is less likely to fail entirely than simple superior ganglionectomy. In one case the pain returned after the simple operation, but was apparently relieved following the secondary removal of the stellate ganglion on the same side. In certain cases it appears that what was considered an angina on the left side before operation was converted into an angina on the right side by the Jonnesco procedure on the left side. This means, however, that the angina on the left side was relieved and the angina on the right side, which was not noticed by the patient pre-operatively because of its comparative insignificance then remained. Contrary to our conception of the anatomical factors involved, from which it would seem that proper sensory nerve ablations ought to stop the pain immediately, certain patients who eventually will be totally relieved will still have pain for a few weeks or months even after a complete bilateral Jonnesco procedure, although as a rule it will be less severe than before the operation. This fact is evidence of the insufficiency of our knowledge concerning the sensory innervation of the heart.

Cutler and Fine have in no case observed any deleterious effects of sympathectomy on the cardiac capacity. While a few surgeons have expressed the opinion that it is particularly dangerous in syphilitic angina, Cutler and Fine find this belief difficult to understand. They admit that a general anesthetic and prolonged surgical trauma may well be deleterious but call attention to the fact that these are matters that enter into consideration in any case of syphilitic cardiac disease in which an operation is contemplated. They believe that when these dangers are duly cared for, a case of syphilitic angina should benefit from the operation as certainly as any other type of case.

The cases in which the operation is most dangerous in the experience of Cutler and Fine are those with

advanced cerebral arteriosclerosis combined with severe coronary disease. Patients with these conditions do not tolerate any surgical procedure well, and it seems that sympathectomy makes them definitely worse, although it may relieve the pain.

Among the most distressing postoperative complications of the procedure are the by effects, which seem to be directly proportional to the degree of nerve resection. The Horner syndrome is a minor defect that becomes compensated in time. Particularly annoying are the pains that are felt in the shoulder, neck, face, jaw and arm on the side on which the operation was performed. In the jaw, especially along the ramus, and in the temporomandibular joint, severe pain is experienced especially at the beginning of a meal and in severe cases may persist throughout the period of food ingestion. In the shoulder or scapula and down the arm, particularly at night, there is a constant ache which is difficult to relieve except by narcotics or local counterirritants. Areas of hyperesthesia on the face, ear, or neck vary, as do those of anesthesia, with the amount of injury done the cervical plexus during the operation. These symptoms vary in severity and extent of distribution in different cases, and may be so distressing as to make the cure seem worse than the disease. Their transitory nature suggests that they may be due to the altered vasomotor control of the organs and tissues deprived of their involuntary nerve supply, or to irritation of the somatic sensory neurons of the spinal and cerebral ganglia as the result of neuromic degeneration of the severed sympathetic nerves.

That surgery will come to have a definite place in angina pectoris seems promising, but it is impossible as yet to say definitely which is the most desirable procedure of those proposed. Cutler and Fine tend to favor the partial Jonnesco procedure, unilateral or bilateral depending upon the nature of the case.

Unfortunately, the condition is not susceptible to laboratory investigation beyond the establishment of the extrinsic nervous connections of the heart. It should be remembered by all who would shoulder the responsibility of operating in cases of angina pectoris that treatment is still in the experimental stage and should be attempted only in carefully selected and studied cases which can be kept under observation until the end results are known.

STANLEY J. SEFGER, M.D.

Okinšewič, A. and Amossov, A. Bilateral Extirpation of the Upper Sympathetic Ganglia and Periarterial Sympathectomy on the Carotids in Chronic and Epidemic Encephalitis with the Parkinsonian Syndrome (Versuche bilateraler Entfernung des oberen sympathischen Ganglions und periarterieller Sympathektomie an den Carotiden bei chronischer und epidemischer Encephalitis mit Parkinsonschen Erscheinungen). *Verhandl. d. 16 russ. Chir. Kongr., Moscow, 1925*, p. 341.

The authors performed bilateral extirpation of the upper sympathetic ganglia and periarterial sympha-



thectomy on the carotids on six men and three women with akinetic hypertonic forms of disease characterized by greatly diminished mobility and hyperkinesis in the form of a tremor. The approach to the lateral column and to the vessels was made by an incision along the anterior border of the sternocleidomastoid muscle.

The immediate favorable effects of the operation were more active mimic motions, a greater range of motion and quicker activity, diminution in the cataleptic symptoms, reduction of the vasomotor and secretory disturbances, and more lively psychic powers.

The unfavorable results included ptosis, headache, toothache, sweating of the upper portion of the body, and increased blood pressure.

There was no effect on the tremor or the spinal (pyramidal) symptoms such as clonus and urinary incontinence. The operation should be performed only when more conservative measures fail.

PETROV (Z)

**Davis L. and Kanavel A. B. Sympathectomy in Raynaud's Disease, Erythromelalgia and Other Vascular Diseases of the Extremities.** *Surg. Gynec. & Obst.* 1916, 21: 720.

Most experimental evidence seems to show that the motor and sensory nerves to the peripheral vessels run only a short distance in the perivascular sheath and then enter the regional somatic nerves in which they run to the cord. The beneficial effects of periaxillary sympathectomy in vascular diseases of the extremities reported by Leriche and others have not been supported by experiments on animals, even those carried out by Leriche. Nevertheless the clinical results cannot be lightly dismissed.

In the cases of patients subjected to a sympathectomy for spasticity, Davis and Kanavel noticed in the extremity operated upon a vasodilatation and rise in temperature which lasted for about two weeks. On the basis of this observation they removed the stellate ganglion or lumbar sympathetic chain in one case of erythromelalgia and two cases of Raynaud's disease. The operation was followed by improvement. A patient who was found later to have thrombo-angiitis obliterans was operated upon under an erroneous diagnosis without improvement. The authors believe that cases with definite sclerosis or permanent obstruction to the arteries involved are not amenable to treatment. The operations are well described and illustrated.

The article is concluded with the following statement:

There are many physiological factors concerned in the control of the peripheral circulation of which the vessel musculature and caliber are but a part. In the present state of our knowledge concerning the pathology of the group of vascular diseases known as vasomotor neuroses we are unable to explain completely the effects produced by removal of the sympathetic innervation to the extremity.

TRACY J. PUTNAM, M.D.

## MISCELLANEOUS

**François J. Lumbosacral Laminectomy in Retention and Incontinence of Urine Due to Spina Bifida Occulta.** (De la laminectomie lombo sacrée dans certaines rétentions et incontinenes d'urine dues au spina bifida occulta.) *J. d'urolog. méd. et chir.* 1916, 15: 161.

François reports five cases of urinary disturbances due to spina bifida occulta.

Case 1 was that of a girl 11 years of age who had had nocturnal incontinence of urine since infancy. The urine was normal and the Wassermann reaction negative. All of the classical treatments had been tried without success.

X-ray examination revealed an occult spina bifida of the first sacral vertebra. Between the fifth lumbar and the first sacral vertebra there was a transverse band of yellowish white tissue 1 cm wide, the right half of which was adherent to and compressed the dural cul-de-sac. The cul-de-sac showed pulsation above this band but not below it.

When the ligament was resected, the entire cul-de-sac pulsed. For five months there was no involuntary urination at night, but at the end of that time it recurred gradually. Possibly the compression recurred. Another examination by subarachnoid injection of lipiodol will be made.

Case 2 was that of a girl 15 years of age with nocturnal incontinence of urine since infancy. In this case also the urine was normal and the Wassermann test was negative.

Roentgenograms showed a hiatus between the first and second sacral vertebrae. Lipiodol injection revealed two ligaments, one between the first and second sacral vertebrae and one between the fourth and fifth lumbar vertebrae.

Laminectomy of the fifth lumbar and the sacral vertebrae was done. In the four months since the operation there has been no further involuntary urination.

Case 3. The patient was a girl of 15 years who had had nocturnal incontinence of urine since infancy. The roentgen examination with lipiodol showed two constrictions of the spinal canal, one between the fourth and fifth lumbar vertebrae and one between the fifth lumbar and first sacral vertebrae. The ligaments were resected after sacral laminectomy. In the three months since the operation involuntary urination has occurred only twice.

Case 4. The patient was a girl of 17 years who had had incontinence of urine since infancy. Several treatments were without result. The urine was normal and the Wassermann test negative. Lumbo-sacral roentgenography showed an anomaly of the arch of the fifth lumbar vertebra and an occult spina bifida of the first sacral vertebra. A subarachnoid injection of lipiodol was very definitely arrested after twenty-four and forty-eight hours at the upper border of the hiatus of the first sacral vertebra.

A curative injection of 10 c.c. of lipiodol from below was tried without success. Laminectomy of

the fifth lumbar and sacral vertebrae showed a ligament extending almost uninterruptedly from the fourth lumbar to the second sacral vertebra. The operation was long and difficult because of the intimate adhesion of the ligament to the dura mater. The ligament ran up under the arch of the fourth sacral vertebra, but as there was a copious venous hæmorrhage when this arch was cut the operation was stopped. In the month since the operation there has been no involuntary urination.

Case 5 was that of a woman 29 years of age with a history of dysmenorrhœa, stubborn constipation for the past four months which sometimes persisted for a week, frequent pain on urination, turbidity of the urine, and finally retention of urine for twenty-four hours which necessitated catheterization. Three months ago there was a terminal hæmaturia.

The urine was turbid but was negative for tubercle bacilli. Physical examination revealed cystitis, a pyelonephritis from colon bacilli on the left side, and a small cyst of the left ovary. As treatment for the cystitis and pyelitis was without benefit, a gynecologist recommended extirpation of the cyst of the ovary as he believed that it might be causing the cystitis through pressure. Beginning eight days before this operation was performed urination ceased and catheterization twice a day became necessary. The operation did not cause any improvement and when the patient was sent to the author for examination she had had complete retention for two months.

Examination by the author revealed pain on pressure over the spinous processes of the fifth lumbar and first sacral vertebrae. The kidneys were normal. Neurological examination showed absence of the plantar reflex on both sides, of the external anal re-

flex, and of paresis and amyotrophie the presence of dorsal hypæsthesia of the toes and the anterior half of the external border of the left foot, exaggeration of the Achilles reflex on the left side, ankle clonus on the left side, normal patellar reflexes, and pain on pressure in the left sacral region (second and third segments).

The subarachnoid injection of lipiodol showed an occult spina bifida of the first sacral vertebra with marked constriction below this point. Laminectomy of the fifth lumbar and sacral vertebrae was done under general anæsthesia. Beneath the spina bifida of the first sacral vertebra there was a yellowish ligament extending across and compressing the canal. This ligament was removed.

Forty-eight hours after the operation the patient was able to empty her bladder completely, the constipation had ceased and the slight disturbances of sensation and of the reflexes had disappeared. Up to the time this report was made, four and one-half months after the operation, the improvement had persisted. This is the first case known to the author of complete retention of urine due to spina bifida and cured by operation for the latter condition.

François believes that patients with idiopathic incontinence of urine which has persisted beyond puberty and resisted all ordinary methods of treatment should be examined roentgenologically for occult spina bifida and by Sicard's method of subdural injection of lipiodol for compression of the spinal canal. If compression is found laminectomy should be done. The same method should be employed in cases of retention of urine when other causes have been excluded and when there is no affection of the general nervous system.

AUDREY G. MORGAN, M.D.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Coventry W A The X Ray and Metastasis in Breast Cancer *Minnesota Med* 1926 ix 316

In the five year period from 1920 to 1925 inclusive Coventry operated on forty seven patients with carcinoma of the breast. Of this number 60 per cent are dead and 10 per cent of those who are living are known to have a recurrence. Of those who are dead all but two died of carcinoma metastases. Of those who are living and have a recurrence one has a recurrence in the skin on the side operated upon, two have carcinoma in the other breast, two have a supraclavicular recurrence and one has involvement of the spine.

The operation performed in all cases except two was radical. In 80 per cent of the cases preliminary roentgen irradiation of medium intensity was given over the breast and gland bearing area. In 95 per cent postoperative irradiations were given the number varying from two to twelve. Coventry has never seen the occurrence of rapid metastasis following irradiation. Rapid spread is probably caused by intensive deep therapy which lowers the patient's resistance.

The sites at which metastases are formed most frequently are (1) the axillary glands (2) the clavicular nodes (3) the chest wall and mediastinum (4) the peritoneal cavity (5) the skin and (6) the skeletal system.

In 95 per cent of the cases reviewed there was axillary involvement before the operation. Coventry does not regard this as a contra indication to surgical treatment.

When metastases are present in the clavicular nodes it is probably best to consider the condition inoperable.

Pulmonary involvement occurred in two cases and liver involvement in four. Local recurrence in the skin occurred only once in this series whereas previous to 1920 it was found quite often. The X ray probably was important in checking it.

Metastases to the skeletal system occurred frequently. The involvement of the osseous system is evidenced by tenderness over the bone often before there is roentgenographic evidence of its presence.

These cases should be considered inoperable. The treatment of metastases with the X ray has not been satisfactory.

Coventry is of the opinion that all lumps in the breast should be removed even when they are apparently benign. He does not believe that irradiation accomplishes anything except the prevention of local recurrences and alleviation of the pain.

ALTON OCHSNER, M.D.

## TRACHEA, LUNGS, AND PLEURA

Iglauer S Use of Injected Iodized Oil in the Roentgen Ray Diagnosis of Laryngeal, Tracheal and Bronchopulmonary Conditions *J Am Med Ass* 1926 lxxviii 1879

The methods most commonly used to introduce a contrast medium into the bronchial tree are injection into the trachea through a laryngeal cannula and injection through a needle passed into the larynx through the cricothyroid membrane.

For the injection of iodized oil—either the French preparation Iodipol or the German product Iodipin—Iglauer uses a special intubation cannula consisting of a shortened metal O Dwyer tube with a longitudinal groove cut in its back wall into which a small bore secondary cannula is soldered. The accessory cannula (designed to convey the oil) is somewhat longer than the O Dwyer tube and terminates above in a nipple over which a long piece of rubber tubing is slipped. Below the secondary cannula extends in a semicircular prolongation beyond the O Dwyer tube.

Preliminary to the examination a dose of morphine or codeine is administered and in the cases of adults the larynx is anesthetized with 10 to 20 per cent cocaine. A long rubber tube is attached to the oil cannula and the intubation tube is threaded in the usual manner for safety and extraction. The intubation tube, carried on an obturator, is then introduced into the larynx under the guidance of the laryngoscopic mirror. In the cases of young children it is inserted by touch. Through the rubber tube which projects from the mouth a small quantity of cocaine solution (2 per cent) or procaine (3 per cent) is injected into the trachea to abolish the cough reflex. With the cannula in position the contrast medium is injected by means of a syringe and the patient placed in the position necessary to fill the portion of the bronchial tree which is to be studied.

Iglauer has used this procedure to study the larynx as well as the bronchial system. In the cases of tracheotomized patients a finger cot filled with the contrast medium is drawn into the larynx from above downward. A lateral roentgenogram then shows the obstruction very definitely.

In cases of bronchiectasis a positive diagnosis can be made easily after the injection of the contrast medium.

A pulmonary abscess may be difficult to fill with the contrast substance as its opening may be very small.

Iglauer does not believe the procedure is contraindicated in tuberculosis. The only contraindications that he recognizes are hyperpyrexia and cachexia.

Occasionally the injection of the oil is followed by dyspnoea and frequently by a slight febrile reaction and a temporary increase in the expectoration. The oil is eliminated chiefly by expectoration, but a small amount is absorbed.

In the discussion of this report, BRONFIN stated that he uses the intratracheal method and has never noticed any unfavorable effects from it although in one case of bronchiectasis the oil was still present sixteen weeks after the injection. Nevertheless, the possibility that the presence of the oil may cause an infiltration in the pulmonary tissue must always be kept in mind.

CARMODY reported that he never uses iodized oil in tuberculosis because he does not wish to employ the bronchoscope in this condition.

ALTON OCHSNER M D

Blalock A Harrison, T R, and Wilson C P  
Partial Tracheal Obstruction. An Experimental Study in the Effects on the Circulation and Respiration of Morphinized Dogs. *Arch Surg* 1926 LVIII, 81

In experiments on dogs anesthetized with morphine the authors studied the effect of partial respiratory obstruction on the pulse rate, respiratory rate, minute ventilation, oxygen consumption, oxygen and carbon dioxide contents of the arterial and venous blood, hydrogen ion concentration, and circulatory minute volume.

Partial obstruction of the tracheal cannula caused slow shallow breathing.

An increase of the carbon dioxide content of the arterial and venous blood occurred with moderate degrees of obstruction, whereas anoxæmia did not occur until the obstruction became extreme.

Even with extreme degrees of obstruction, the oxygen consumption was not decreased.

Acidosis due to the accumulation of carbon dioxide was a constant finding.

The circulatory minute volume was very much increased although the pulse rate was practically unchanged.

In one animal to which alkali was given intravenously during the period of tracheal obstruction the hydrogen ion concentration and blood flow became normal, but the minute ventilation and oxygen consumption were decreased below the normal value. The dyspnoea appeared to be relieved.

From these observations the following conclusions are drawn:

1. A healthy circulation may partially compensate for a failing respiratory mechanism.

2. When the lungs are normal and tracheal obstruction is produced the carbon dioxide content of the blood is elevated quite markedly before anoxæmia occurs.

3. Alkaline therapy may be of value in cases of tracheal obstruction due to inoperable causes and in laryngeal oedema following instrumentation. Whenever alkali is administered, oxygen also should be given.

MORRIS H. KAHN M D

Fritz, R. The Liberation of Pleural Bands Under Pleuroscopic Control During the Treatment of Tuberculosis by Artificial Pneumothorax (La libération des brides pleurales sous contrôle pleuroscopique au cours du traitement de la tuberculose par le pneumothorax artificiel). *Presse méd* Par 1926 XXXIV, 8

The value of pulmonary collapse in the treatment of predominantly unilateral ulcerative caseous tuberculosis is no longer questioned. The indications for artificial pneumothorax have been extended and its technique made exact. Most surgeons agree that as complete a collapse as possible should be established progressively and maintained over a long period.

Various statistics show the frequency and therapeutic insufficiency of incomplete compression. For cases in which complete compression is prevented by intrapleural adhesions Jacobaeus of Sweden and Herve of France have proposed the division of the adhesions. This requires clear vision of the adhesions which the fluoroscope and roentgenogram show only imperfectly.

Fritz describes the use of the pleuroscope with its trocar and of the galvanocautery or the diathermic sound with the conductors. The operative indications are greatly reduced by the endoscopic examination. The optimum indication is offered by film form bands or membrane like fibrous bands which are non vascular, do not penetrate the lung tissue, and are located at the level of the third or fourth interspaces. Apical and diaphragmatic bands are relative indications. Short, broad thick adhesions are contra indications.

The operative and postoperative complications are pleural reactions and hæmorrhage. The pleural reactions vary greatly in their gravity, but the hæmorrhage is rarely dangerous.

WALTER C. BURKET M D

Holman E. The Postoperative Pulmonary Abscess. *Northwest Med* 1916 XXV, 290  
Castlen C R. Pulmonary Abscess. *Northwest Med* 1916 XXV, 294

Buschmann T W. The Surgical Treatment of Lung Abscess. *Northwest Med* 1916 XXV, 297

HOLMAN. Of the two generally accepted theories as to the cause of postoperative pulmonary suppuration the embolic theory is the only one which is supported by experimental evidence. Attempts to produce a lung abscess by the introduction of infected material into the bronchial tree have been repeatedly unsuccessful. Holman and Chandler were able to produce a pulmonary abscess in ten of twelve attempts by introducing an infected embolus into the jugular vein. In experimental studies the first evidence of pulmonary suppuration occurs six days after the injection of the infected substance. This agrees with the clinical findings, as Moore found the average time of onset of the symptoms in 187 cases to be the sixth day.

Expectant treatment is indicated in cases with an associated pneumonia, in the incipient stage of the

abscess and when progressive improvement is noted. If the abscess communicates with a bronchus it should be treated by postural drainage for from six to eight weeks before operative interference.

If there is no communication of the abscess with a bronchus or if the patient's condition becomes progressively worse operation should not be delayed. If the abscess is located centrally artificial pneumothorax may be attempted. This may be unsuccessful however as pleural adhesions are present in from 40 to 50 per cent of the cases. It should never be used when the abscess is located peripherally because under such circumstances the abscess might rupture into the pleural cavity and produce a fatal empyema. The treatment of peripheral abscesses is direct drainage. After resection of the ribs overlying the abscess cavity the cavity should be opened only when pleural adhesions are present and then with a cautery. If no adhesions are found the wound should be packed with gauze. From five to eight days later firm enough adhesions will have formed to permit drainage of the abscess with safety. The abscess should be drained at the point where the pleural adhesions are found. Abscesses in the upper lobe are best drained anteriorly. Those located in the lower lobes can be drained laterally or posteriorly.

In cases with multiple abscess formation the cautery pneumectomy of Graham is indicated.

Prophylaxis is especially important. Patients who have had a recent acute tonsillar or respiratory infection should not be operated upon for at least a week after the subsidence of the acute symptoms. All operative procedures should be carried out as gently as possible as trauma increases the danger of the formation of emboli.

CASPER. Pulmonary suppuration may follow inflammation of the lung or may be caused by direct extension from a neighboring organ, the aspiration of infected material in operations about the upper respiratory tract or by septic emboli.

In the case of any patient developing postoperative respiratory symptoms or in whom there is an exaggeration of already existing pulmonary symptoms the possibility of a lung abscess must be borne in mind.

Tangential X-ray pictures are often more valuable than the ordinary anteroposterior views. The sputum is quite characteristic. Large amounts of foetid sputum are expectorated. The sputum is negative for tubercle bacilli but may contain elastic tissue. Cavity signs are present in about 25 per cent of cases.

A pulmonary abscess is usually of short duration as contrasted with bronchiectasis and pulmonary tuberculosis.

Multiple abscesses usually follow acute suppurative processes elsewhere in the body and offer some difficulty in diagnosis.

If no improvement is obtained after three or four weeks under medical treatment a surgical procedure is indicated.

Twenty five cases of pulmonary abscess are reported in seven of which the lesion followed tonsillectomy. In three cases a general anesthetic had been used. In twelve cases the abscess followed pneumonia. In five cases four of which were fatal the cause was not determined.

Ten cases were operated upon. In eight a thoracotomy with open drainage and in two an extrapleural pneumolysis was performed. In two cases treated expectantly spontaneous healing occurred. Eleven cases were treated first by artificial pneumothorax. The pneumothorax aided in the localization of adhesions. Operation was performed later.

As conservative methods of treatment postural drainage and artificial pneumothorax are recommended. Of the operative procedures drainage of the abscess in two stages is the method of choice.

BUSCHMANN. Bronchoscopy should be used only in cases of pulmonary abscess located at the root of the lung and due to the aspiration of a foreign body.

Artificial pneumothorax is applicable to early cases before a dense inflammatory reaction has occurred around the abscess. It is most useful in cases in which the abscess is located centrally.

External drainage is indicated in the treatment of peripherally located abscesses. A two stage operation should be done.

In cases of deep abscess thoracoplasty is preferable to external drainage.

In cases with multiple suppurative processes the cautery pneumectomy of Graham may be used.

BUSCHMANN has employed chiefly the technique of extrapleural pneumolysis. This consists in the production of an extrapleural pneumothorax by separating the parietal pleura, visceral pleura and involved lung from the thoracic cage. The collapse of the abscess cavity is maintained by tamponade with gauze. Buschmann reports in detail five cases of pulmonary abscesses in four of which extrapleural pneumolysis was performed with good results.

ALTON OCHSNER M.D.

Smirnov S. Experiments with Simple and Combined Ligation of the Pulmonary Vessels (Erfahrungen mit einfachen und kombinierten Unterbindungen der Lungengefäße) *Verhandl. d. 10. russ. Chir. Kong. Moskau 1915* p. 382.

To determine the effect of simple and combined ligation of the pulmonary vessels the author carried out experiments on thirty dogs. Following the ligation of branches of the pulmonary arteries the pulmonary tissue showed a fibrous atrophy and the circulation was re-established through the bronchial vessels. After twenty months there developed in such a lung hypertrophic changes of the bronchial mucosa with papillary excrescences of the epithelium which here and there bridged the bronchial lumen and sometimes led to cyst formation. In the author's opinion these changes contra indicate ligation of branches of the pulmonary artery in the treatment of bronchiectasis which has been recommended by Sauerbruch.

The ligation of the pulmonary veins caused œdema in the pulmonary parenchyma. Simultaneous ligation of arteries and veins (branches of the pulmonary vessels) was followed by atrophy of the parenchyma, including the bronchial epithelium. Ligation of the bronchial vessels was soon compensated by anastomoses of the pulmonary vessels and therefore had little effect.

PETROV (Z)

**Alexander E. G. and Sherk R. L. Empyema in Children.** *Atlantic M J* 1926 LVII 60

This article reports a study of 60 cases of empyema in children which were treated in the past eleven years in four institutions. The mortality is much greater in the first three years of life (32 per cent) than it is in later childhood (11 per cent) because in empyema in infancy the resistance is low. Tœmia is severe, septicæmia is more prone to develop and complications are more common.

In nearly all of the cases reviewed the condition was preceded by pneumonia, but in some of them it followed other respiratory disturbances and in one it developed after an injury to the chest wall. Early pleurisy in pneumonia is an important causative factor.

In the typical case of acute empyema the fever recurs after the pneumonia crisis with dyspnoea, acceleration of the pulse, cyanosis, and displacement of the heart. Empyema is to be suspected when the temperature falls but does not quite reach normal and oscillates at that level, the percussion note becomes more dull, and the dullness extends anteriorly. In subacute cases there may be instead of these signs, a loss of weight and appetite or a hacking cough or diarrhoea. The authors have never known of delayed resolution in the pneumonia of childhood in cases in which this is suggested empyema is present.

The roentgen ray aids in locating the empyema and revealing the condition of the lungs. The absolute diagnosis rests upon the aspiration of pus. Nearly all of the cases reviewed were of the massive type of empyema localized toward the base of the thorax posteriorly.

The sex and ages of the patients, the incidence and location of the empyema, and the mortality are given in tables. Thirty one per cent of the children were under 12 years of age. The condition was most common in the second year of life and occurred more frequently in boys than in girls and on the right side than on the left side. Of the communicable diseases scarlet fever is most frequently complicated by empyema but in this group of conditions empyema is rare.

When the empyema was discovered early in the cases reviewed it was treated by repeated aspirations or intercostal drainage through a catheter while the surgeon awaited resolution of the pneumonic processes, the thickening of thin pus, the localization of a massive empyema or improvement in the patient's general condition. The subsequent operative procedure, which was performed under

local anæsthesia when possible and with the patient lying on his abdomen, consisted in rib resection and the insertion at the lowest point of two fenestrated tubes for drainage. The sudden withdrawal of large amounts of fluid was avoided. Irrigation was found to be of little value in hastening convalescence. Dakin's and other solutions were disappointing. The tubes were shortened a few centimeters from time to time and removed as soon as feasible, the wound then being allowed to heal if there was no fever.

In no case was there any acute osteomyelitis or necrosis of the ribs. At the Philadelphia Hospital for Contagious Diseases cases in which rib resection was done were fatal, whereas those treated by aspiration or intercostal drainage terminated in recovery.

In the postoperative care the most important factors are sufficient drainage, food rich in calories to prevent nitrogen loss, blowing exercises to promote lung expansion and the prevention of spinal deformity due to rib resection.

Recovery from empyema is slow. The disease cannot be considered cured until the sinus is healed and there are no signs of trouble attributable to the empyema.

MAURICE MEYERS M D

**Krupzov W. The Results of the Operative Treatment of Acute Empyema at the Wladimir Children's Hospital.** (Resultate der operativen Behandlung akuter Empyeme nach dem Material des Wladimir Kinderhospitals.) *Verhandl d 16 russ Chir Kong Moscow* 1925 p 354

The author reviews 145 cases of empyema in children. Fifty seven and two tenths per cent of the patients were under 6 years of age. In 64 per cent of the cases the empyema was of metapneumonic origin; in 23 per cent it was apparently primary and in the others it was due to various causes.

Of the ninety five cases in which a bacteriologic study was made diplococci were found in 61.4 per cent, streptococci in 12.5 per cent, staphylococci in 7.2 per cent and mixed organisms in 18.7 per cent.

All of the 145 patients were operated upon, eleven in the first week, seventeen in the second, and 117 at later periods. The time at which the operation was performed seems to have had an influence upon the results as the highest mortality occurred following operations performed in the second week. The age of the patient had a decided influence upon the results, the mortality being 50 per cent among those under 1 year of age, 35.2 per cent among those between 1 and 4 years, 7.2 per cent among those between 4 and 9 years, and 5.8 per cent among those between 9 and 12 years.

When the cases were grouped according to the bacteriologic findings the mortality was found to be 41.7 per cent in those with streptococci, 25 per cent in those with staphylococci, 23.7 per cent in those with diplococci, and 15.8 per cent in those with a mixed infection.

In the majority of the cases (113) a thoracotomy with rib resection was done. In only twenty eight was rib resection omitted. The mortality in the

former group was 24.7 per cent while that in the latter group was 14.2 per cent. The author believes that as factors in the mortality the differences in the bacteriological findings and the technique were of secondary importance to the ages of the patients.

During the last year a new method consisting in opening of the pleura without postoperative drainage has been used. Of the sixteen patients so treated thirteen had an uneventful convalescence and only three died. In the cases without drainage the average duration of the illness was twenty-three and four tenths days whereas in the cases with drainage it was fifty-nine and seven tenths days. PETROV (Z)

**Krasnobajev T. and Freidin I. The Results of the Treatment of Acute Empyema in the Morosov Children's Hospital (Resultate der Behandlung akuter Empyeme nach dem Material des Morosovschen Kinderkrankenhauses). *Verhandl. d. 16 russ. Chir. Kong. Moscow 1925 p. 358***

The authors review the results obtained in 353 cases of empyema which were treated in the period from 1904 to 1924. Of the 193 cases in which a bacteriological examination was made diplococci were found in 105 streptococci in thirty-four staphylococci in twenty-one and mixed organisms in thirty-three. In 280 cases a thoracotomy without rib resection was done. Local anesthesia was employed. Thirty-eight of the children were 1 year of age or under, seventy-six between 1 and 4 years old, 132 between 4 and 9 years and thirty-four between 9 and 12 years. The mortality in these age groups was 73.7 per cent in Group 1, 37.1 per cent in Group 2, 23.3 per cent in Group 3 and 14.7 per cent in Group 4.

Resection of one rib was done in twenty-one cases. In this group there were three deaths. The number of cases is too small to warrant conclusions with regard to the operation.

In the last three years the author has obtained good results from repeated punctures and aspirations. In half of the fifty-two cases in which this treatment was used complete healing resulted. In the others a secondary thoracotomy was necessary. Eleven of the patients were 1 year of age or under, twenty-one between 1 and 4 years old, fourteen between 4 and 9 years and six between 9 and 12 years. The mortality was 9.1 per cent in Group 1, 19.0 per cent in Group 2 and 0 in Groups 3 and 4.

The authors recommend multiple aspirations as the best method for the treatment of empyema in children. PETROV (Z)

## HEART AND PERICARDIUM

**Leriche R. The Treatment of Obliterative Pericarditis and Precordial Thoracotomy (A propos du traitement de la symphyse du péricarde et de la thoracotomie précordiale). *Bull. et mém. Soc. nat. de chir.* 1926 11:18**

Since his first comprehensive study published in 1909 Leriche has performed six precordial thora-

ctomies three for obliterative pericarditis and three for other cardiopathies. He now believes that it should be performed only in cases of pericarditis and sclerosing mediastinitis. In the other classes of cases its results are too transitory.

Only local anesthesia should be used. Two of the deaths in the author's cases were attributable to the addition of general anesthesia. The resection should be quite extensive. There is no advantage in removing the posterior perichondrium, a diffuse bone plaque is as apt to form in absence of the perichondrium as in its presence.

In only one of the author's cases was the late result good. A patient in poor condition with albuminuria, enlargement of the liver and ascites was so benefited by the operation that when he was last seen twenty-four months later he was able to work on scaffolds and in caissons under pressure. One patient with an excellent immediate result died suddenly at a dinner given to celebrate his recovery. In the others the improvement was only transitory.

As a whole the results are mediocre and in any given case cannot be foretold. However the operation should not be abandoned as there is everything to gain in these cases and very little to lose.

ALBERT F. DE GROAT M.D.

## ÆSOPHAGUS AND MEDIASTINUM

**Morley J. Diverticula of the Æsophagus. *Brit. M. J.* 1926 1:981**

Diverticula of the æsophagus are a somewhat uncommon cause of dysphagia but are not as rare as was formerly supposed. They occur usually in elderly men. The diverticulum is in reality a pharyngeal diverticulum as it arises at a relatively weak spot between the transverse and oblique fibers of the cricopharyngeus muscle. The cause of the mucosal herniation is not known but obstruction below the pharynx due to spasm of the upper æsophageal sphincter, retrosternal goiter or organic stricture may be a factor.

In the diagnosis carcinoma must be excluded. This requires an X-ray examination.

The æsophageal pouch offers a grave mechanical obstruction to deglutition and can be successfully treated only by surgery. In most cases the operation of choice is primary excision and suture but to avoid grave complications the sac must be rendered as sterile as possible by frequently washing it out with a mild antiseptic. Anesthesia should be induced with intratracheal ether or by local infiltration with procaine. The operation should be attempted only by surgeons who are familiar with the technique of gastro-intestinal surgery. The sac must be closed with the greatest care and accuracy. The wound should be always drained for the first few days. In the cases of emaciated patients a gastrostomy should be performed at the same time to insure a sufficient liquid intake. After the operation deglutition must be avoided for several days. CYRIL J. GLASPEL M.D.

**Pokotilo W.** A Case of Complete Reconstruction of the Oesophagus by the Method of Roux (Ein Fall von vollendeter Rekonstruktion der Speiseröhre nach Roux) *Verhandl d 16 russ Chir Kon.* Moscow 1925, p 352

The author reports the case of a 26 year old woman with an impassable cicatricial stricture of the oesophagus

At the first operation, the jejunum was sectioned and the distal end was implanted subcutaneously in the jugular fossa and sutured in this position. The distal end of the remaining jejunum was then united to the proximal end.

Three weeks later, an anastomosis was made between the stomach and the loop of bowel passing near it and the peripheral end of the segment of bowel was constricted by reefing sutures.

After another four weeks the oesophagus was severed in the neck, its aboral end closed, and its oral end implanted in the loop of bowel in the neck. At this point a fistula formed which was closed only after six interventions over a period of eight months. Feeding was then possible through the mouth. The subcutaneous bowel allowed the food to pass normally, and good peristaltic contractions were visible externally.

The author believes it would be better to make the anastomosis between the stomach and the loop of bowel which is to act as the oesophagus at the first operation and to draw the segment of bowel not only up to the jugular fossa but half way up the neck. This would simplify the most difficult step in the operation, namely the implantation of the severed oesophagus into the loop of bowel. **PETROV (2)**



# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

**Verescinsky A** The Healing of Peritoneal Wounds  
(Ueber die Heilung von Peritonealwunden) *Verhandl d 16 russ Chir Kong* Moscow 1925 109

The healing of all wounds of the peritoneum even the smallest occurs by primary or secondary intention

In either case the process is associated with an inflammation of the subserosa and a peritoneal exudate is formed the free cells of which play an important role in the formation of granulations. In primary healing adhesions occur easily and are prevented only when the peritoneal endothelium and the subserosa are entirely normal. This normal condition is very difficult to determine and is dependent upon the colloidal state. The greater the acid reaction of the tissues such as occurs in inflammations in general and has been demonstrated experimentally in the primary healing of wounds by Gergoloff the more the cells swell the greater the amount of water they take up and the more adhesive they become. Such increased adhesiveness may explain the easy occurrence of adhesions in primary healing in the presence of a quasi normal peritoneal endothelium.

In healing by secondary intention numerous mitoses of the subserous fibroblasts are found at the end of forty eight hours. In addition the author was able to demonstrate by the silver impregnation method that from the second to the third day there are formed independently of the cell bodies in the oedematous subserosa numerous very thin pre collagen fibers which grow between the collagenous fibers and the endothelium into the adhesive exudate and unite with similar pre collagen fibers from the other side. Gradually these fibers become thicker and change into true collagenous fibers which can be distinctly stained with picric acid. The formation of such pre collagen fibers in the fibrin of the exudate independent of the subserosa could not be demonstrated.

The vascularization of the granulation tissue of the peritoneal wound begins at the end of the first day and takes its origin from the endothelial processes of the nearest capillaries. By the beginning of the third day the granulation tissue is distinctly vascularized and on the tenth day arterial and venous capillaries are to be seen. On the twenty seventh day well formed arteries and veins can be made out.

In conclusion the author states that in experimental and pathologic anatomical specimens of peritoneal adhesions he was often able by the Golgi method to demonstrate nerve fibers.

FORSMAN (Z)

**Wilensky A O and Hahn L J** Mesenteric Lymphadenitis *Ann Surg* 1926 LVIII 812

Mesenteric lymphadenitis is often mistaken for acute appendicitis but is an entity more or less distinct from appendicitis pathologically anatomically and to some extent clinically.

Some cases may not be differentiated pre-operatively but at operation the appendix is found normal and the mesenteric lymph glands enlarged. There seems to be no clinical relationship between the two conditions. The involvement of the mesenteric lymph nodes is associated with pathological changes in Peyer's patches rather than in the appendix.

Mesenteric lymphadenitis may be either pyogenic or tuberculous. Three types of the former are recognized namely simple suppurative and calcified. The authors discuss the characteristics of each. Conservative treatment is indicated in all except the suppurative type. **EARL G GARSIDE M D**

## GASTRO INTESTINAL TRACT

**Jordan S M and Lahey F H** Diverticula of the Alimentary Tract *Surg Clin N Am* 1926 VI 747

Diverticula of the œsophagus may be of either the pulsion or the traction type. Those of the traction type seldom cause symptoms as their apices are usually directed outward and upward and rarely harbor accumulations. The diverticula of the pulsion type usually occur at the pharyngeal dimple on the posterior wall of the œsophagus and are due to a congenital defect plus the action of increased intra pharyngeal pressure. The chief symptom of œsophageal diverticula is dysphagia. Ultimately even liquids are swallowed with difficulty. Regurgitation of undigested food without hydrochloric acid may occur. Dyspnoea cyanosis and hoarseness may result from pressure.

The treatment consists in either dilatation with œsophageal bougies or the surgical removal of the sac. The two stage removal of the sac should be done under local anaesthesia. The first stage should consist in liberation of the sac and its implantation upon the skin of the neck and the second stage performed after the wound has healed in the removal of the sac. Leakage from the sac stump usually causes a fatal mediastinitis. To prevent a recurrence dilatation should be routinely employed for some time after the operation.

Diverticula of the stomach are not common. Those of the traction type are probably simple penetrating ulcers with perigastritis in the inflammatory or cicatricial stage.

Diverticula of the duodenum are second in frequency to those of the stomach. They may be single

or multiple and of either the traction or the pulsion type. They are found most commonly in the second portion of the duodenum. A clinical diagnosis of duodenal diverticula is impossible because the symptoms arising from pressure or inflammation in the diverticula simulate those arising from similar processes in the duodenum, pancreas, and bile ducts. An X-ray diagnosis of duodenal diverticula is possible, but the shadows must be differentiated from those of ulcer, duodenal stricture due to spasm, and dilatation of the ampulla of Vater. Repeated fluoroscopic examinations with the use of atropine to overcome the spasm may be necessary.

The treatment is distinctly surgical, but dissection may be very difficult if the sac is involved in a mass of pancreatic tissue including the pancreatic and biliary ducts. After its liberation, the sac should be resected. Gastro enterostomy is desirable to give the duodenum temporary rest. If exploration shows surgery to be impossible, medical treatment in the form of a non irritating diet and measures to maintain normal bowel function is necessary.

In the colon, diverticula may occur at any point. Colonic diverticula are more prone than others to become inflamed and to rupture. When this occurs, a localized abscess rather than general peritonitis develops. The symptoms are pain, tenderness and constipation. In many cases there is a palpable mass. The X-ray diagnosis is difficult as the semi solid faeces may so fill the pockets that no barium can enter them. When a palpable mass is present, exploration is usually advisable. Resection has a high mortality unless it is preceded by colostomy and is done in several stages. The medical treatment consists in maintaining the normal function of the colon to keep the pockets empty.

CYRIL J. GLASFEL M.D.

#### Peck C. H. Cardiospasm. Digital Divulsion in Two Cases. *Ann Surg* 1926 lxxiv 16

The first case of cardiospasm reported by the author was that of a man 42 years old who had had difficulty in swallowing for eight years. The condition had not been painful, but the retention of food in the dilated œsophagus caused discomfort. The use of antispasmodics and bougies had been of no benefit. The X-ray showed an enormous dilatation of the œsophagus with obstruction at the cardia.

In November, 1925, a gastrostomy was performed. The dilated œsophagus projected 2 in. below the diaphragm. No fibrosis or thickening was found. The stomach was opened 2½ in. below the cardia and retrograde dilatation with bougies and digital stretching was done until the cardia readily admitted two fingers.

Recovery was uneventful. Solid food was given within a week after the operation. Improvement in the ability to swallow continues up to the present time. X-ray examination March 6, 1926, showed a marked decrease in the dilatation of the œsophagus.

The second case reported was that of a woman 26 years old with a history of difficulty in swallowing for

four years, vomiting which occurred four or five hours after eating, and pain in the epigastrium and back. Induced vomiting gave no relief. The symptoms had become more severe during the past year. X-ray examination showed marked dilatation of the œsophagus and delay in the progress of the barium.

At operation, performed in April, 1925, the cardia was found 3 in. below the diaphragm and greatly dilated. There was no thickening. Through a gastrotomy, the cardia was dilated with the fingers to a diameter slightly larger than that of two fingers.

Recovery was uneventful. Six months later the patient was free from symptoms and had gained 25 lbs. In April, 1926, the œsophagus was still greatly dilated.

In the discussion of this report MORRIS called attention to the fact that peripheral nerve irritation produced by an impacted molar or eye imbalance might be a factor in the causation of cardiospasm.

HYND stated that he believed Peck's patients might experience a recurrence of their symptoms.

PECK replied that he did not consider his cases cured permanently, but as there was no pathological lesion present except cardiospasm it is probable that they could be relieved again in the future, if necessary, by mere dilatation.

DON K. HUTCHENS M.D.

#### Delore A., Comte H. and Labry R. Gastric Hæmorrhages of Obscure Origin (Contribution à l'étude des gastrorrhagies de causes mal connues). *Presse méd* 1er 1926 xxxiv 83

The authors discuss briefly the etiology of the rare hæmorrhages of gastric origin in which no lesion of the mucosa and no constitutional disease which might be held responsible for such bleeding can be demonstrated. Some surgeons have called attention to local vascular changes as a possible cause of the bleeding. In this article two cases with alterations in the gastric vessels are reported. The first case was that of a man of 36 years who for two years, had had melæna and repeated gastric hæmorrhages which finally resulted in severe anæmia. The patient complained also of vague dyspeptic symptoms and atypical epigastric pain. Examination of the abdomen was essentially negative. At operation the stomach was found dilated, but showed no evidences of ulceration or neoplasm. The arteries however, were enormous, tortuous and dilated, and pulsed violently. The duodenum, liver and gall bladder appeared normal. Because of the dilation of the stomach a posterior gastro enterostomy was done. In addition, the gastric (coronary) artery and the gastro epiploic arcade were each ligated at two points.

The gastric hæmorrhages ceased entirely after the operation. Five years later they had not recurred and the patient's general condition was greatly improved.

The second case was that of a man of 35 years who had had digestive disturbances for ten years. Two years after their onset, a gastro enterostomy

was performed and resulted in some improvement. Eight years later there suddenly occurred a severe melena which persisted. Physical examination of the abdomen and X ray examination of the stomach were essentially negative. The stomach was small and the gastro enterostomy opening was functioning normally.

At operation the stomach was opened and the mucosa thoroughly explored but no trace of ulceration was found. Blood fairly gushed from the gastric incision. In this, as in the first case, the gastric vessels were enormously dilated. The right gastro epiploic artery was tortuous and its violent pulsations were transmitted to the gastric wall. On the assumption that this vessel had been responsible for the bleeding it was ligated at four points and divided between ligatures close to the pylorus.

The patient made an uneventful recovery. When he was seen again five months later he had had no further hemorrhage. LAWRENCE JACQUES M D

Sturtevant M. and Shapiro L. L. Gastric and Duodenal Ulcer. Frequency, Number, Size, Shape, Location, Color, Sex and Age in 7,700 Necropsy Records at Bellevue Hospital, New York. *Arch Int Med* 1926 XXXVI 41

Autopsy statistics probably afford the best means of determining the frequency of gastric and duodenal ulcer. While they are open to certain objections, they are undoubtedly more reliable than medical diagnosis or surgical observation.

In 7,000 autopsy records made at Bellevue Hospital, New York, in the period from 1904 to 1922 it was found that gastric and duodenal ulcers considered together were less frequent than is indicated by most statistics. This finding was due to the low incidence of gastric ulcer. The incidence of duodenal ulcer was about the same or a little higher than that indicated by other statistics.

A gastric or duodenal ulcer or the evidence of healed lesions was found in 2 per cent of the autopsies. One and a half per cent of the ulcers were gastric and 0.5 per cent were duodenal. According to nearly all statistics ulcer is much less common in America than in Europe.

About 9 per cent of the gastric ulcers were multiple. This compares closely with other statistics. About half of the duodenal ulcers were multiple, a higher percentage than is given by other statistics.

The average linear measurement for single gastric ulcers was 2.35 cm. With one exception the size of the ulcers decreased as the number of the lesions increased. The duodenal ulcers ranged from less than 0.5 to 2 cm. in diameter. No noteworthy change in the size of the duodenal ulcers was noted when they were grouped according to number.

Most of the gastric ulcers were round, but about 5 per cent were oval. Almost all of the duodenal ulcers were oval or round.

Seventy six per cent of the gastric ulcers were found near the pylorus, 12 per cent near the cardia and 1 per cent in the midgastric zone. Of nine on

the anterior surface three were near the pylorus. The duodenal ulcers were nearly all in the first portion of the duodenum, but in seven cases of multiple duodenal ulcers the second portion of the duodenum was involved. Also in two cases of encircling ulcer the lesion extended to the second portion.

Two gastric but no duodenal ulcers were found in colored persons. The incidence of gastric ulcer was about three times as high in males as in females, while that of duodenal ulcer was slightly higher in males than in females. CYRIL J. GLASPEL M D

Lahey F. H. The Scheme of Management of Gastric and Duodenal Ulcer in This Clinic. *Surg Clin N Am* 1926 VI 695

The author states that the lack of agreement between the internist and surgeon as to whether peptic ulcer should be treated by medical or surgical measures is due to a lack of familiarity of each with the successes and failures of the other.

Conservative surgical measures represented by gastro enterostomy have a mortality of about 1 or 2 per cent, fail to cure in at least 10 per cent of the cases, and are followed by jejunal ulcer in at least 5 per cent. Radical procedures such as pylorotomy and partial gastrectomy have a mortality ranging from 10 per cent upward, but in practically all cases in which the patient survives they give a lasting cure.

The results of medical treatment cannot be stated so definitely since as yet there are no available figures with regard to persisting cures and recurrences.

At the Lahey Clinic all patients with peptic ulcer except those showing definite indications for surgery are put to bed for three or four weeks under the neutralization regime devised by Sippy. In a large percentage of cases this treatment brings about a persisting amelioration of the symptoms with the disappearance of blood from the stools and improvement in the X ray defect.

Cases regarded as unfit for non surgical treatment are those in which malignancy is suspected, those with perforation, those in which the symptoms can not be relieved in seven days, those in which occult blood cannot be made to disappear from the stools in fourteen days, and those with pyloric stenosis.

In doubtful case of carcinoma much helpful information can be obtained by noting the effect of medical treatment. If the symptoms are not relieved the X ray defect persists and occult blood is still present in the stools after a week or two, radical operation is justifiable.

Without such evidence from medical management exploratory operation is of little value as it often reveals a small deep ulcer which cannot be diagnosed as malignant or benign from inspection alone. The surgeon must then either close the abdomen and watch the progress of the condition, perhaps leaving a carcinoma behind, or subject the patient to the danger of partial gastrectomy when the lesion is an ulcer that might be cured medically.

In operable cases of frank gastric carcinoma partial gastrectomy must be undertaken. Whether

this operation should be performed for a benign lesion depends considerably upon the skill of the surgeon. When there is considerable doubt, it is perhaps better to do a conservative gastro enterostomy even with the risk of gastrojejunal ulcer. If necessary, this may be followed by a radical operation later when conditions for it will be more favorable.

CYRIL J. GLASPEL, M.D.

**Grégoire, R.** The Contra Indications to Surgery in Gastric Ulcer (Les contre indications chirurgicales dans l'ulcère de l'estomac). *Bull. et mem. Soc. nat. de chir.*, 1926, lu 184.

There are periods in the course of a gastric ulcer during which there is a distinct exacerbation of the infective process. These are characterized by an elevation of temperature, which may reach 39 degrees C or more, a corresponding elevation in the pulse rate, an increase in the intensity and duration of the pain, and the occurrence of gastric hæmorrhages. Operative interference during such periods is attended by the gravest danger because of the tendency of the manipulations to disseminate the infection. Surgical measures should therefore be delayed until the crisis has entirely subsided. Two cases are cited to illustrate respectively the danger of operating at such times and the safety with which surgery may be resorted to when adequate time has been allowed for subsidence of the exacerbation.

In the discussion of this report, DUYAL cited a case in which encapsulated diplococci were found on microscopic examination of an excised pyloric ulcer. The patient died soon after the operation from pneumococcus pneumonia, attributed to the dissemination of the infection from the ulcer.

DUMARIER suggested that the reason why gastro enterostomy alone proved to be safer than gastro enterostomy with excision in Grégoire's cases was that the former required less handling of the tissues.

CUNEO stated that he also advocates gastro enterostomy alone in cases with acute inflammation. He has been able to demonstrate streptococci in all of the inflamed ulcers which he has subjected to microscopic examination. An acute pancreatitis may follow gastric operations, particularly resections.

LECENE performs gastro enterostomy alone for the small mobile, slightly inflamed ulcers. Extensive, indurated ulcers he treats by resection made as wide as possible to avoid the danger of passing too close to an infected lesion.

LAWRENCE JACQUES, M.D.

**Bohmansson, G.** The Surgical Treatment of Gastroduodenal Ulcers with Particular Regard to the Operative Anatomy and the Postoperative Digestion Physiology with a Contribution to the Question of the Surgical Treatment of Acute Ulcer Hæmorrhage. *Acta chirurg. Scand.* 1926, 14 Supp. vii.

Studies of the anatomy of the stomach during recent years by Forssell, Perman, Djorup, and

Usadel have shown that the circular muscle fibers, the branches of the vagus, and the main vessels of the submucosa take a parallel course in the ventricular wall. For the maintenance of a surgical anastomosis and the postoperative motility of the stomach it is important to prevent injury of these anatomical structures during operation. Even granting that the direct impulses to contraction of the muscular apparatus are elicited by the autonomous nervous system, the efficiency of this activity is regulated by the extraventricular nerves sympathetic and parasympathetic. Experimental physiology seems to indicate also that these nerves are of importance for the qualitative regulation of the glandular secretion in the stomach.

In all cases of ulcer Konjetzny, Orator, and Kalima have found a gastritis localized chiefly in the pyloric antrum. This observation has been confirmed by the author's findings in freshly resected specimens. In all cases of ulcer there is an indisputable gastritis which is independent of the location of the lesion. In the more chronic cases, plasma cells and regressive changes are predominant, whereas in more recent cases and in acute exacerbations in chronic cases additional leucocytes in great numbers and not infrequently suppurative processes in the mucous membrane and milary abscesses are found. The constant presence of plasma cells even in acute ulceration of the mucous membrane with hæmorrhage indicates that the gastritis is older than the ulceration.

In all probability the inflammation in the pyloric part of the stomach is primary and constitutes one, and perhaps the most important, factor in the so-called gastric ulcer diathesis. In cases of chronic ulcer with acidity there is generally a condition of atrophic gastritis with increased connective tissue formation and glandular atrophy. In cases of acute ulcer the inflammation is more intense. The varying degrees of acidity may possibly have something to do with the different stages of gastritis.

The treatment of ulceration should be directed primarily against the associated gastritis and should consist of medical treatment with careful regulation of the diet or of radical operation. Internal treatment is best suited to early cases. In cases with advanced changes its effects are generally of short duration.

Surgical treatment is indicated in certain acute complications, organic obstruction, or suspected malignancy, and in all chronic cases in which medical treatment has been tried but has given only unsatisfactory or temporary results. If the history is a long one and the anatomical changes are of a serious nature, surgical interference may be advisable even without previous medical treatment.

If the history is indicative of chronic ulcer, operation should be undertaken without delay when sudden hæmorrhage occurs. In acute ulceration of the mucous membrane with serious hæmorrhage, operation should be performed only when it is vitally necessary.

When operation is undertaken for chronic ulcers its purpose should be not only to eliminate the risks of the ulcer itself but to relieve the gastritis the predisposing factor. Palliative method mean prolonged after treatment with dieting and should be resorted to only on rare occasions when radical measures are impossible and medical treatment has been tried for a sufficiently long time without avail.

The best clinical results with minimal disturbance of postoperative digestion will be obtained by a method which on the one hand eliminates the ulcer and the pyloric antrum and on the other hand restores the physiological duodenal passage and brings the rhythmical emptying of the stomach under control. Such a method is Billroth's primary resection.

The primary mortality of this operation has been less than 2 per cent. In no case was there any recurrence during the time of observation. Of the patients followed up after operation 99 per cent had been considerably benefited and 92 per cent had been completely restored to health, being able to take any kind of food. In most cases the gastric motility had been restored and the emptying of the stomach had returned to normal. In only exceptional cases was there a more marked disturbance of intestinal function after the operation. The findings of chemical analysis of the stomach contents was as a rule more normal than after other methods of treatment.

The postoperative digestion depends much more upon restoration of the physiological passage through the duodenum and a normal gastric motility than upon the postoperative gastric chemistry.

**Walton, A. J.** An Operation for Gastric Ulcers of the Lesser Curve. *Surg. Gynec. & Obst.* 1926 41:1093.

Whenever possible the operation selected by the author for gastric ulcers of the lesser curve is wide excision followed by temporary occlusion of the pylorus and posterior gastroenterostomy. However if there is a narrowing at the site of the ulcer leading to marked constriction of the hourglass type or if the symptoms even slightly suggest the onset of carcinoma the operation preferred is partial gastrectomy by the modified Bolea method. In cases of very large ulcers situated high up and firmly adherent to the pancreas a simple gastroenterostomy is performed as a temporary measure and a year or so later a second operation is performed. By the end of that time the ulcer may have so decreased in size that excision is relatively easy.

Walton states that if modern methods including the test meal and X-ray examination are used there are few if any complications which will not be recognized before operation. Such complications are a second ulcer at the pylorus or in the duodenum, gall stones and appendicitis. The greatest difficulty at operation is caused by firm adhesions to the pancreas and the onset of carcinoma. The danger of recurrence of the ulceration at the site of excision which is very great when simple incision alone is done is almost wholly eliminated when the treat-

ment of the ulcer is supplemented by posterior gastroenterostomy.

In the operative procedure described by the author the stomach is drawn out of the wound and the lesser curvature and its anterior surface are examined. An opening is then made through an avascular area of the gastrocolic omentum and the posterior surface is explored. When the ulcer is found an opening is made in the lesser omentum above it and the coronary artery is ligated both above and below it. One blade of a clamp is then passed through the opening in the gastrocolic omentum and out through the opening in the lesser omentum and clamped well above the ulcer. A second clamp is placed in a similar manner below the ulcer. A wedge excision of the ulcer is then done beginning on the anterior wall.

The posterior wall of the stomach is closed with a running suture of catgut which terminates and is tied at the lesser curvature. A second suture passed through all thicknesses of the posterior wall is also tied at the lesser curvature. The opening in the anterior wall is sutured in a similar manner. The first row of sutures passing through all three layers of the stomach and the second through only the serous and muscular coats. The latter suture is made to pick up the divided edges of the gastrohepatic omentum and at the lesser curvature is tied to the first suture which passed through the sero-muscular coat.

The pylorus is embedded with a running mattress suture of silk so as to bring about a temporary occlusion. Posterior no-loop gastroenterostomy with the use of the jejunum is then performed. The opening in the stomach being made transversely as close as possible to the greater curvature. One half of the opening is proximal and the other half distal to the sutured line of excision. This assures neutralization of the acid contents high up in the stomach. If hourglass constriction follows both pouches of the stomach will be drained by the gastroenterostomy.

Vomiting due to obstruction the so-called vicious circle is today very rare. In most cases it is probably due to constriction of the opening in the mesocolon and may therefore indicate an error in technique. It is most apt to occur when posterior gastroenterostomy is performed on a patient with a fat or adherent mesocolon or the opening of the mesocolon is not sutured to the stomach sufficiently far from the anastomosis. When it is temporary it is probably due to edema of the opening of the mesocolon rather than a mechanical obstruction. Therefore if the frequent vomiting of large quantities of vomitus persists after twenty-four hours treatment should first be carried out on the assumption that the condition is due to edema.

The operative mortality of the method described is relatively low, not exceeding 2 per cent. Ninety per cent of the patients are completely cured. Of the remainder the majority may have infrequent attacks of vomiting and discomfort. Such attacks

occur practically only in women who are suffering from viscerotoposis in addition to the ulcer of the lesser curvature, a combination which is not uncommon. The type of lesion described is almost never followed by postoperative gastrojejunal ulcer and rarely by carcinoma. JOHN J. MALONEY, M.D.

Holmes G. W., Dresser, R. and Camp J. D. Lymphoblastoma. Its Gastric Manifestations with Special Reference to the Roentgen Findings. *Radiology* 1926 vii 44

This study is based on eight cases of lymphoblastoma of the stomach observed at the Massachusetts General Hospital, Boston, and a review of the literature. The cases observed are tabulated with regard to the gastro intestinal symptoms and the roentgen, surgical and pathological findings. The histories of three of them are reported in detail.

General consideration is given to the classification pathology, symptoms, and clinical course. In the comparatively few records of cases with gastric involvement which have appeared in the literature, the roentgen findings are very meager. All of the cases observed by the authors were subjected to roentgen examination. In two the roentgen picture was negative, in five it showed filling defects and in one it revealed an irregular deformity of the antrum. The roentgen appearance did not differ from that of carcinoma, except that in some of the cases the peristalsis was not interfered with to the extent generally seen in carcinoma. The diagnosis based on the roentgen findings was carcinoma in five cases and lymphoblastoma in one. The possibility of the presence of lymphoblastoma in all atypical cases showing carcinomatous like deformities should be considered. ADOLPH HARTUNG, M.D.

Köhler, H. An Approach to the Duodenum Through the Left Thoracic Cavity in Retroperitoneal Perforation of the Duodenum. (Ein Weg zum Duodenum durch die linke Brusthöhle bei retroperitonealer Duodenalperforation). *Deutsche Ztschr. f. Chir.* 1926 xciv 212

In the case of a young woman with a perforated duodenal ulcer the author first assumed a conservative attitude but eight days after the perforation resection of the eighth rib on the left side became necessary because of empyema. Seven days later, after enlarging the rib resection wound and resecting a greater portion of rib Köhler split the diaphragm in the median depression of the dome under the guidance of his fingers. By this route he was then able to approach the head of the pancreas and the site of the perforation on the posterior wall of the duodenum and to drain the latter externally. Three days later he drained a perinephritic abscess on the left side through the diaphragmatic wound. The patient recovered.

Köhler suggests this approach to the site of perforation in cases which reach the surgeon after the time for the usual operations has passed. In such cases the abdominal findings often simulate those of

an abdominal perforation, the peritoneum being severely irritated. The differential diagnosis is facilitated by the early though slight participation of the left pleural cavity. VON REDWITZ (Z)

Hamilton, A. J. C. Intersigmoid Hernia. *Edinburgh M. J.*, 1926 n.s. xxviii 448

The intersigmoid fossa is present in from 70 to 80 per cent of bodies. It is found most consistently during the fifth and sixth months of fetal life.

It lies in front of the left ureter and the left common iliac artery, near or at the bifurcation of the latter. Its usual depth is between 2 and 3 in. Its orifice, which is oval or circular and measures about  $\frac{1}{2}$  in. in its widest diameter, lies at the medial border of the left psoas muscle.

Intersigmoid hernia is the rarest of all retroperitoneal herniae. The total number of reported cases is fifteen. All but two of the fifteen subjects were males. In most of the cases there were signs and symptoms of acute intestinal obstruction. In all but two the content of the hernia was small intestine.

The author reports a case which presented the signs of recurrent subacute strangulation which finally became acute. JACOB S. GROVE, M.D.

Kantor, J. L. Colon Studies. III. The Clinical Significance of Ileal Stasis. Its Association with Colitis. *Am. J. Roentgenol.* 1926 xvi 1

This study is based on 161 cases in which the emptying of the ileum was observed satisfactorily after the administration of a standard opaque meal. The following technique was adopted.

A standard meal consisting of barium sulphate in a pint of ferulic acid was administered in the morning. Six hours later, an observation was made to determine whether the stomach was empty. All cases showing the slightest residue were excluded from the series. The patient was then instructed to take a mixed meal in order to stimulate the discharge of the ileo-lymphic reflex. Nine hours after the ingestion of the original barium meal another observation was made to determine whether or not the ileum was empty.

Retention of part of the opaque meal in the ileum at the time of the nine hour examination was regarded as stasis. Sex, age, gastric acidity, habitus, and ileocecal insufficiency were not found to exert any definite influence on its occurrence, and ordinary constipation, mechanical obstruction, and so called chronic appendicitis were not of much importance. Congenital anomalies of the colon played a marked role as did also caecal stasis. The association of ileal stasis with colitis was one of the most striking findings brought out by the study.

The author's summary of his findings and his conclusions is as follows:

1. Ileal stasis occurs in over three fifths of all patients.

2. It does not seem to be so directly associated with constipation in general as it is with caecal stasis in particular.

3 It is not commonly associated with obstruction due to mechanical factors

4 It seems to vary inversely with the degree of descent of the cæcum (length of the cæcocolon)

5 It seems to be definitely associated with a state of lowered receptivity of the colon as indicated by increased irritability and expressed clinically by the presence of colitis

6 It is accordingly best explained as a functional defense reaction for the protection of an injured segment of the intestinal pathway It may therefore be transient or recurrent as well as continuous in its operation

7 This study seems to support the block system control theory of gastro intestinal motor function

ADOLPH HARTUNG M D

Carman R D and Moore A B The Roentgenological Findings in Ulcerative Colitis *Am J Roentgenol* 1926 xvi 17

By chronic ulcerative colitis is meant that form of colonic ulceration which is not caused by parasites tuberculosis dysentery actinomycosis or syphilis Logan has collected the records of 600 cases seen at the Mayo Clinic and has described two clinical types In one type there is little systemic reaction In the other the disease is accompanied by extreme prostration The stools are profuse and watery and contain much blood and mucus Microscopic examination is of importance to exclude parasites and other specific organisms With the proctoscope areas of ulceration may be discovered in the lower segment of the large bowel

Roentgenological examination is best made with the barium enema In the early stages of the disease spasm is the chief roentgenological finding that does not distinguish the condition from other forms of colitis However the persistence of spasm after the administration of belladonna in conjunction with the proctoscopic findings may assure the diagnosis In well advanced cases the roentgenological signs are fairly typical These consist in rapid filling of the large bowel marked narrowing of its lumen and absence of haustration Interspersed throughout the bowel are local constrictions giving it the appearance of a string of sausages

Burgen J A The Etiology and Treatment of Chronic Ulcerative Colitis *Am J Roentgenol* 1926 xvi 10

Chronic ulcerative colitis was first described by Wilks and Moxon in 1875 and by White in 1888

Various bacteria have been considered of importance in the etiology of the condition but many workers have found some form of streptococcus in predominance, frequently in diplococcal arrangement The experimental evidence indicates that such a diplococcus is the causative organism The symptoms, pathological changes complications and course of the disease strongly support the view that infection is the cause and that the diplococcus is the original invader A Gram positive lancet

shaped diplococcus has been isolated in the vast majority of cases and it is the author's belief that if this were searched for at the proper time it would be found in all cases Cultures of the organism injected intravenously into rabbits and dogs have produced lesions essentially like those in patients with the disease Distant foci of infection particularly in the tonsils and teeth, are of vast importance in the progress of the disease The various stages of the condition have been observed on the exposed loops of intestine after the performance of ileostomy and colostomy to stop the advance of the infection

In the past the treatment of the disease has varied from the use of a bland no residue diet local and topical applications and irrigations and non specific vaccine treatment to surgical treatment by cæcotomy colostomy ileosigmoidostomy and ileostomy

Clinical results establish the importance of (1) immunization against the described diplococcus (2) the removal of all distant foci of infection (3) a bland non irritating diet as a supporting agent (4) the empirical administration of various drugs as aids in some cases and (5) as an extreme measure surgical interference by ileostomy

Truesdell E D The Surgical Treatment of Acute Appendicitis *Ann Surg* 1926 lxxiv 104

Truesdell reviews a series of 259 cases of acute appendicitis operated upon in the past seven years with a mortality of 3.9 per cent One hundred and thirty cases had intra abdominal drainage, twenty-one were drained down to the peritoneum Of the specimens arriving at the pathological laboratory 39 showed gangrenous appendicitis 103 acute or subacute suppurative appendicitis 42 acute or subacute catarrhal appendicitis and 25 oedema of the appendix lymphoid hyperplasia mucocoele or chronic appendicitis Six appendices were reported normal

In the author's opinion the incision of choice is the McBurney incision Special care should be taken to deliver the appendix with minimal trauma Truesdell rarely employs abdominal pads The stump of the appendix is most commonly treated by inversion but when drainage must be established and time conserved in the more serious cases simple ligation of the stump is regarded as adequate In cases of oedema or inflammatory changes in the caecal wall about the base of the appendix a suture involving the wall of the cæcum is undesirable

Drains of folded dental rubber are used exclusively Occasionally a separate small incision for drainage is made in the flank or above the symphysis During the first few days after the operation the drain is loosened in the abdominal wall It is then gradually shortened until it is removed from seven to ten days later

The postoperative treatment includes the Fowler position when necessary the administration of morphine with restraint enemata when indicated flax seed poultices and the rectal tube for the reduction of distention fluids by mouth whenever possible, avenge in selected cases, and the subcutaneous

administration of saline solution in cases with a toxic condition or dehydration.

In the cases reviewed the postoperative complications of importance were consequent upon the appendiceal inflammation and the operative wound. Twelve patients with postoperative fever recovered without surgical interference. Seven developed secondary abscesses which required drainage. In four cases the wound which was closed at operation required drainage because of infection. Three wounds broke down so that a secondary suture was necessary. There were two persistent sinuses following primary drainage both patients tuberculous. Three patients bled into the bowel to an alarming degree but recovered spontaneously. Four developed a violent diarrhea. In one case a second operation was necessary for acute intestinal obstruction. Bronchitis developed in three cases, pleurisy in one and pneumonia in one. In cases in which a McBurney incision was used and deep drainage was established the incidence of hernia was about 8.5 per cent.

There was no case of definite fecal fistula and ileostomy was not performed in any case. Ileostomy was not done because there was no indication for it and because the author is not convinced of its efficacy.

The McBurney incision was used in 35 of the 79 operations. This incision offers the most direct approach to the diseased appendix in the majority of cases, requires the least amount of breaking up of essential lining adhesions, allows the advantages of introduction of drains, and results in postoperative herniation.

The lower right rectus incision is best when exploration is necessary but must be made longer than the McBurney incision requires more breaking up of adhesions in the delivery of the appendix and is less adaptable to drainage. The right rectus incision is better for an operation performed by the sense of sight and the McBurney incision for an operation performed largely by the sense of feeling. In acute surgical conditions of the lower abdomen of doubtful nature and especially those associated with evidence of peritonitis there is ample indication for the right rectus incision. Dr. K. HETCHEM, M.D.

Clute H. M. Subphrenic Infection After Appendicitis. *Surg. Clin. N. Am.* 1936 vii, 773.

The author reports in detail a case of acute gangrenous appendicitis with perforation which he operated upon forty-eight hours after the onset of the condition. The appendix was removed under direct vision and a large cigarette drain was inserted. After a few days all of the symptoms of peritonitis had disappeared and the patient's general condition was much improved but his temperature remained constantly elevated around 102 degrees F.

Peritonitis fever following a laparotomy is almost always due to infection in the wound, the pouch of Douglas or the subphrenic space. Infection of the wound usually causes pain and tenderness

around the wound. A collection of pus in the pouch of Douglas usually causes rectal pressure and tenesmus or deep pelvic pain. A subphrenic infection usually produces no subjective symptoms except perhaps rapidly increasing weakness.

In the case reported the wound could be ruled out as the source of the fever and there was no evidence of infection in the pouch of Douglas. X-ray examination of the chest showed fluid in the right pleural cavity, and on aspiration of the chest clear non-infected fluid was obtained. A simple serous pleurisy is nearly always present in the chest when there is pus just beneath the diaphragm. Several punctures were made into the subphrenic space in the tenth interspace in the right midaxillary line and eventually a large quantity of foul smelling pus was obtained. This abscess was drained by a two-stage operation.

Under local anesthesia, a 2 in. portion of the tenth rib was removed at the site of the puncture which had returned pus, the pleural cavity was opened and the parietal pleura was sutured to the diaphragm with a running stitch. The wound was then packed with gauze for forty-eight hours to allow firm adhesions to form before the abscess was opened.

Two days later the abscess was opened under nitrous oxide anesthesia by cutting through the diaphragm. A large amount of pus was evacuated. Following the drainage the temperature returned to normal and the patient made an uneventful recovery.

CYRIL J. GLASPEL, M.D.

Heald C. L. A Simple Bloodless Operation for Anorectal Prolapse in Children. *Surg., Gynec. & Obs.* 1936 xlii, 845.

The operation described by the author is performed under general anesthesia with the child in the dorsal position, its legs supported by an assistant. After reduction of the prolapse a small bivalve rectal speculum is introduced, the blades of the speculum are opened laterally and the lower rectal mucosa is swabbed with a 1 per cent aqueous solution of mercurochrome. The sacrococcygeal junction is then located by inserting the index finger and a 3 in., three-eighths-circle curved needle on one end of a coarse silkworm gut is inserted through the posterior rectal wall through the notch at the sacrococcygeal angle and brought out through the skin posteriorly. A needle on the other end of the same suture is then passed in the same manner on the opposite side of the coccyx. A second similar suture is placed  $\frac{1}{2}$  in. lower and brought out on each side of the coccyx.

Both sutures are tied rather tightly over a folded gauze compress. The gauze is kept dry by a cover of rubber dam sealed to the skin with narrow strips of adhesive which are in turn protected from moisture by rubber cement.

The child is kept in bed for three or four days. During this time paregoric is given to prevent bowel movements. At the end of two weeks the sutures are removed.



The efficacy of this method depends upon the tendency of silkworm gut under tension to cut its way through the tissues. As the suture slowly cuts through the rectal wall and the surrounding tissues healing by granulation occurs with the formation of firm connective tissue adhesions.

ANTHONY I. SAVA M.D.

**Jacobs A. W.** Carcinoma of the Rectum and Sigmoid. Analysis of 121 Cases. Results of Treatment by Radiation. *Surg. Gynec. & Obst.* 1926. xlii. 50.

From a review of ninety one cases of carcinoma of the rectum and thirty cases of carcinoma of the sigmoid Jacobs concludes that there are no subjective symptoms characteristic of these conditions.

Blood in the stools is usually a late manifestation and constipation does not become very evident until the growth has reduced the caliber of the gut to such an extent as to produce a stricture. Rectal examination revealed a mass in over 70 per cent of the cases.

Flatulence and indigestion associated with stool irregularity and melena demand careful local examinations. In addition gastro intestinal X-ray proctoscopic sigmoidoscopic and biopsy examinations should be made.

Surgical statistics have shown that so far as mortality and recurrence are concerned the most unfavorable period for operation is between the thirtieth and fortieth years of age. They show also that while the very old are more liable to die from the operation than the young their chance for permanent recovery is better.

In the more advanced case the proper combination of surgery and radiotherapy can accomplish something toward the alleviation of symptoms and the control of the growth of the neoplasm.

Radium properly applied has a definite inhibitory and destructive effect on the majority of rectal neoplasms.

In addition deep roentgen therapy should be given in the pelvis to inhibit metastasis by destroying or decreasing the amount of lymphatic tissue and to destroy or inhibit the growth of metastatic nodules.

JACOB S. GROVE M.D.

**Lockhart Mummery J. P.** and **Gordon Watson Sir C.** Discussion on the Complications of Excision of the Rectum. *Proc. Roy. Soc. Med.* Lond. 1926. xiv. Sect. Surg. 18.

The immediate complications of excision of the rectum are sepsis, shock, hæmorrhage, delay of healing, orchitis, epididymitis, intestinal obstruction, urinary complications, sloughing of the gut, bronchitis, pneumonia, pulmonary embolism and hæmiplegia. The remote complications are narrowing of the colostomy opening, ventral hernia, sacra hernia, prolapse from the colostomy opening, persistent pain in the perineal scar, the accumulation of material in the blind end of the gut after perineal resection, enlargement of the prostate and persistent hærrhæa.

MORRIS H. K. M.D.

## LIVER GALL BLADDER PANCREAS AND SPLEEN

**Copher G. H., Kodama S. and Graham E. A.** The Filling and Emptying of the Gall Bladder. *J. Exper. Med.* 1926. xlii. 65.

As a result of the control of the flow of bile into the duodenum largely by the tonus and movements of the duodenum bile intermittently enters the gall bladder where it is concentrated and undergoes other changes. The gall bladder is emptied through the cystic duct (1) by the washing out of its contents by bile from the liver (2) by the elasticity or contractile mechanism of its walls (3) by variations of intra abdominal pressure due to respiratory movements contiguous organs etc. and (4) by absorption of a portion of the contents of the gall bladder through its walls.

The gall bladder is never entirely empty but tends to come to a state of partial collapse when its contents are under minimal pressure. Rhythmic contractions of the gall bladder due to its musculature have not been demonstrated. If they occur they may aid, but they are not essential to its emptying or filling.

In experiments on dogs a rubber bag which was substituted for the gall bladder functioned in a manner very similar to that of the normal gall bladder as shown by cholecystographic studies. The concentrating function however was absent.

MORRIS H. KAHN M.D.

**Mentzer S. H.** A Clinical and Pathological Study of Cholecystitis and Cholelithiasis. *Surg. Gynec. & Obst.* 1926. xlii. 82.

Sixty six per cent of 612 consecutive autopsies at the Mayo Clinic showed grossly visible pathological changes in the gall bladder. Seventy five per cent of the gall bladders showed microscopic pathological changes. Seven and seven tenths per cent of the deaths were due to disease of the gall bladder *per se*. Gall bladder disease is essentially a disease of adult life. The youngest patient in the series was a girl aged 13 years.

Eight per cent of the diseased gall bladders showed only minor inflammatory changes. Cholesterosis of the gall bladder is essentially a non-inflammatory disease. It was present in 38 per cent of the total series. Eighty two per cent of the women who had been pregnant had some grossly visible gall bladder disease. Sixty four per cent of them showed cholesterosis only. In 70 per cent of the patients weighing more than 210 lbs. this lipid disturbance was grossly visible in the gall bladder wall. Gall stones were found in 22 per cent of the adults, 17 per cent of the males and 28 per cent of the females. The youngest patient with gall stones was a woman 23 years of age.

Hydrops of the gall bladder was found in 7 per cent of the series. The inflammatory changes in the gall bladder wall and in neighboring organs were less marked in cases of stones rich in cholesterol than in



removal are that the blood runs down and obscures the ducts more drainage is required than in the other procedure and there is much more hemorrhage

The removal of the gall bladder from below upward requires first of all an adequate incision. The cystic and common ducts are made prominent by traction upon them and the peritoneum over them is divided so that all structures (cystic duct and artery) are exposed. The cystic artery is ligated separately and the stump of the cystic duct and artery is covered over by suturing the peritoneal flap. The common duct may be recognized from the network of vessels on its wall. More than half of the common duct lies behind the duodenum. For the exposure of the retroduodenal portion of the duct an incision must be made in the parietal peritoneum just external to the duodenum. In this area there are numerous small blood vessels that require ligation.

CYRIL J. GLASPEL, M.D.

**Floercken H.** Recurrent Pain and Discomfort After Operations on the Bile Passages with Particular Regard to Anastomosis Between the Biliary Tract and the Duodenum (Ueber ruckfaellige Schmerzen und Beschwerden nach Operationen an den Gallenwegen mit besonderer Berücksichtigung der Anastomose zwischen Gallengang und Zwölffingerdarm). *Deutsche Zeitschr. f. Chir.* 1906, 62: 181.

In cases re-examined because of recurrent discomfort after operation upon the biliary tract the author found colic fever and icterus due to a persisting cholangitis with or without overlooked stones, reflex spasms of the stomach and sphincter of Oddi arising from the scar area or cystic stump or constant pain due to the formation of a hernia adhesions changes in acidity or chronic pancreatitis. In some cases there were diseases of other organs such as renal lesions and duodenal ulcer.

The results have been considerably improved since Floercken has performed his anastomosis between the choledochus and the duodenum in all cases in which the duct is dilated its contents are turbid and icterus is present. The method is contra-indicated however when the wall of the biliary duct is friable when there are anatomical difficulties and when ascariades are present. Floercken has never observed ascending cholangitis.

In 329 cases in which a re-examination was made after the operation good results were found in about 90 per cent. According to statistics the best treatment is early operation in the form of a simple resection without drainage of the hepatic duct. Cholechooduodenostomy gave considerably better end results than were obtained in the cases with drainage.

In the treatment of the postoperative disturbances the Carlsbad cure is recommended. In suitable cases atropine and the instillation of magnesium sulphate into the duodenum with the duodenal sound may be considered. When there is no persisting cholangitis but Head's zones are found the

paravertebral injection of novocain tutocaine or dolantin in the tenth dorsal segment by Laeven's method is indicated. In cases of floating kidney with pyelographically demonstrable changes in the renal pelvis and the ureter nephropexy is beneficial. In cases of recurrent febrile colic which do not respond to duodenal intubation another laparotomy should be performed for the removal of an overlooked stone or the treatment of stenosis of the biliary passages.

WASSERTRUEDINGER (Z)

**Rufanoff I. G.** Pancreatitis Associated with Cholecystitis. Experimental Studies (Pankreatitis im Zusammenhang mit Cholecystitis experimentelle Untersuchungen). *Verhandl. d. 16. russ. Chir. Kong. Moskau* 1923, p. 624.

To determine the causes of acute hemorrhagic suppurative and chronic pancreatitis and the part played by cholecystitis in the pathogenesis of pancreatitis the author carried out the following experiments on sixty-one dogs:

1. The introduction into the pancreatic tissue of physiological sodium chloride solution alcohol bacteria or bile ten experiments.
2. Ligation of the various ducts (cystic duct common bile duct and pancreatic duct) eight experiments.
3. The introduction into the gall bladder of stones and sand with and without infection twenty experiments.
4. Intraduodenal ligation of the papilla of Vater with and without ligation of the duct of Santorini and with and without the introduction of infection into the gall bladder twenty three experiments.

From the findings of these studies it is evident that acute hemorrhagic pancreatitis usually develops after the entrance of infected bile into the pancreatic tissue when the escape of pancreatic juice is obstructed. The suppurative inflammation is the result of the direct entrance of infection into the tissue of the gland.

Without touching upon the internal secretion of the gland the author emphasizes the great resistance of the islands of Langerhans which always remain intact even when the tissue of the gland is destroyed. This finding corresponds to the clinical picture of pancreatitis since in most cases the condition runs its course without the appearance of sugar in the urine.

In Rufanoff's opinion the most correct theory regarding acute hemorrhagic pancreatitis is the fermentation infection theory. The cause of death is intoxication not hemorrhage.

In conclusion the author states that pancreatitis is a serious complication of inflammatory processes in the biliary passages. It is prevented by early surgical intervention in such cases. In acute pancreatitis the biliary passages should always be examined and drained and in chronic pancreatitis with compression of the common bile duct an anastomosis to the gastro-intestinal tract should be made.

SCHACK (Z)

Beresow, I. *The Relation of the Change in the Blood Picture Following Splenectomy to the Blood Forming Function of the Spleen* (Die Veränderung des Blutbildes nach Splenektomie im Zusammenhang mit der blutbildenden Funktion der Milz) *Chir Sammelh d propädeut chir Klin u d Inst f Krebsforsch, I Moskauer Staatsuni*, 1923, p 18

After splenectomy there is first a lymphocytosis and later an eosinophilia. Many investigators reckon the percentage content and not the absolute numbers of the various cell forms and thereby obtain apparently contradictory results. The blood findings should be given in absolute figures and expressed graphically, as the curves will reveal the mechanism of origin of the cells.

The author is of the opinion that the lymphocytosis following splenectomy is the result of the cessation of the action of hormones which restrict the formation of lymphocytes. The effect of these hormones is exerted through the autonomous nervous system. After excluding the action of this system by means of atropine the author was able to decrease the lymphocytosis from 10 to 70 per cent.

Beresow made determinations also in the cases of ten patients in the stationary period and studied the labile leucocytosis which occurs after the ingestion of food.

The blood picture after splenectomy closely resembles that of Basedow's disease. The author was unable to confirm the finding of a very marked eosinophilia. On the other hand, a moderate eosinophilia occurs in all vagotonic conditions and is of the same nature as the lymphocytosis.

The red blood cells were studied in twelve splenectomized dogs. The number rose about 10 per cent. In cirrhosis of the liver in man it increases about 25 per cent, while in hæmolytic icterus in man it increases about 30 per cent. The transitory polycythæmia which increases after the removal of the pathological spleen demonstrates the hæmolytic function of the spleen. The lymphocytosis, which constantly becomes more labile, proves that the spleen not only takes part in the lymphocytosis by means of its follicles but also with the aid of hormones formed in the reticulo-endothelial apparatus, has a part in the regulation of hæmatopoiesis.

REINBERG (Z)

# GYNECOLOGY

## UTERUS

**Bland P B** The Conservative Treatment of Uncomplicated Retrodisplacement of the Uterus  
*1m J Obst & Gynec* 1926 xii 89

Probably no condition arising in the human body has been so often falsely accused of causing symptoms both systemic and local as uterine displacement. For no other disturbance has such an array of therapeutic methods both medical and surgical been used with almost equally uniform failure to give symptomatic relief.

The teaching that the uterus is maintained in position by a combination of the pelvic ligaments is not correct. Usually the round ligaments are observed as two cylindrical or ribbon like cords passively traversing the sides of the pelvis from the internal abdominal rings to the uterine cornua. Rarely are they seen in a state suggesting in any way that they sustain the uterus.

The round ligament operation is now performed relatively seldom. Indeed if the conservative plan gradually evolved and adopted during the past few years may be regarded as a criterion of the future it is obvious that uncomplicated cases will be treated if treated at all along ultraconservative lines. It is probable that simple malpositions will be regarded more from a physiologic anatomical standpoint than a pathological standpoint.

The only types of displacement which may be legitimately placed in the category of surgical displacements are those of the large hyperplastic uterus, the large chronically inflamed adherent uterus and the pathological prolapsed uterus. In such conditions considerably more surgery than simply shortening of the round ligaments or forward fixation of the uterus is necessary. E L CORNELL MD

**Mikels F M** Conservative Treatment of Cervical Erosions with Electrocoagulation *Surg Gynec & Obst* 1926 xliii 105

The author describes and classifies the various types of cervical erosions and discusses various forms of treatment.

In treatment by electrocoagulation the patient is placed in the dorsal position on an auto condensation pad connected with the indifferent pole of a d'Arsonval current or the common outlet of diathermy current and the point of the electrode is burned or plunged into the mucosa to a depth sufficient to include all pathological tissues when the current is turned on.

From 2 to 500 ma will give sufficient heat to coagulate the tissues thoroughly. The diameter involved depends somewhat upon the length of time the tissues are exposed to the current. The dosage

depends upon the judgment of the operator. Care must be taken to prevent too extensive coagulation.

Mikels advises complete coagulation of all simple erosions which do not respond to medical treatment and of all complicated erosions to remove pathological tissue. He regards this method as the most conservative treatment of inflammatory lesions of the cervix and the greatest safeguard against the development of secondary malignancy.

ALBERT W HOLMAN MD

**Wolfe S A** The Clinical and Pathological Features of Puberty Hemorrhage *1m J Obst & Gynec* 1926 xii 45

Puberty hemorrhage is a definite clinical entity—a menorrhagia or metrorrhagia occurring in the absence of inflammation, neoplasia and pregnancy. The soft patulous cervix is pathognomonic. The body of the uterus may or may not be enlarged. The symptoms recur after curettage but are always controlled by radium.

The curettings are abundant, thickened and frequently polypoid. Their character is due to a diffuse glandular, stromal and vascular hyperplasia.

The persistence of solitary ripening follicles or the simultaneous maturation of multiple follicles changes a physiological endometrial hyperplasia into a pathological hyperplasia. These changes have been experimentally reproduced by Frank and others in laboratory animals.

Corpus luteum formation is absent. The uterus is the site of the bleeding. The hemorrhage is due to thrombosis of the endometrial vessels with ensuing necrobiosis and to the mechanical rupture of engorged capillaries.

The factors inaugurating persistent follicular cysts in the ovary with their concomitant endometrial hyperplasia remain a subject for future study.

E L CORNELL MD

**Hitzanidés E** Axial Torsion of the Fibromatous Uterus (Torsion axiale de l'utérus fibromateux) *Gynec et Obst* 1926 xiii 103

Axial torsion of the uterus is rare; only eighty five cases having been reported in the literature to date. It is associated with large tumors and seldom occurs in women under 40 years of age. As a rule the tumors are implanted in the fundus of the uterus near the median line.

The pathological changes which accompany the torsion are for the most part the result of interference with the blood supply. The uterus becomes congested and edematous and the fibromata may pass through all the stages of degeneration as far as gangrene. The ovaries and tubes and even the broad ligaments share to a greater or less degree the

circulatory stasis in the uterus. The point of rotation is the juncture of the body of the uterus and the cervix. At this point the uterine tissue may become completely divided, continuity being maintained only by the peritoneum. Hæmatometra follows occlusion of the uterine canal and, becoming infected, results in pyometra. Adhesions are common and often serve to maintain the torsion permanently. In time the adhesions become very vascular with the establishment of a collateral circulation.

The character of the symptoms depends upon the rapidity with which the torsion occurs. Acute torsion produces acute, violent abdominal pain comparable in intensity to that of a ruptured ectopic pregnancy or a twisted ovarian cyst. The abdomen becomes rigid and tender, this making satisfactory examination impossible. The pulse and temperature are not altered to a degree comparable with the intensity of the other symptoms. Metrorrhagia may or may not be present. When the patient is not operated upon immediately the symptoms gradually subside, exploration becomes possible and the tumor is discovered and identified with the uterus.

The remission which follows the subsidence of the acute symptoms is usually of short duration and unless operation is performed death results from peritonitis, intestinal obstruction, or internal hæmorrhage.

Slow torsion may manifest itself in one of several ways. It may simply attract attention to the presence of a uterine fibroid or, by arresting the menstrual flow and causing enlargement of the abdomen, it may suggest pregnancy. More commonly the torsion progresses with intermittent attacks of pain of slight intensity which occur during the menstrual periods or after fatigue. It is only after the development of complications such as the formation of adhesions to neighboring organs, compression of neighboring organs, hæmatometra or pyometra, degeneration of the fibroid or peritonitis that the symptoms become alarming and bring the patient to operation.

The condition is rarely recognized before operation. Faure and Quenu emphasize the importance of two signs, amenorrhœa in young women and the impossibility of introducing a uterine sound.

The only treatment is surgical. Usually hysterectomy is indicated. The mortality in cases operated upon has been given as 7 or 8 per cent. Without operation, it is 63 per cent.

The author reports two cases.

ALBERT I. DE GROAT, M.D.

**Bardachzi F.** The Best Method of Treatment of Myomata and Hæmorrhagic Metropathies with the Roentgen Rays (Ueber die zweckmässigste Behandlung der Myome und hæmorrhagischen Metropathien mit Röntgenstrahlen). *Strahlentherapie* 1916, 1, 307.

The advantages of the single dose method of roentgen therapy lie in the certainty and rapidity of the effect. The doses given by previous methods

were not smaller, on the contrary, they were much larger because the penetration of the earlier apparatus was slight. Today, with the use of modern apparatus in one dose sterilization, roentgen sickness is never more than a slight and transitory indisposition.

The first Freiburg technique is dangerous in the hands of beginners. Moreover it is inadequate. In irradiation of the ovaries by modern methods every roentgen burn of the skin is to be ascribed to a technical error. It is now possible also to prevent deep injuries. Holfelder's procedure has undeniable theoretical advantages and is harmless, but because of the deep position of the organ in irradiation of the back, large quantities of the rays are lost. Another disadvantage of this method is that it requires considerable skill.

The Erlangen technique gives sure results but has two disadvantages which cannot be overcome with certainty, viz. the danger of injuring a loop of intestine by over radiation due to a change in the patient's position and the danger of causing embolism by the compression which is necessary.

The second Freiburg method is sure and harmless. However besides its many advantages it has the disadvantage of causing greater roentgen sickness due to the fact that a greater area is irradiated.

Single dose irradiation requires an efficient instrument, a careful plan of treatment and exact methods of measuring. In modern deep therapy the saving of time and the harmless production of the necessary deep dosage are of great importance. Because of his experience in carcinoma therapy and in irradiation of the ovary, the author cannot agree with those who believe that further improvement in the apparatus as regards the production of harder rays would be useless.

The single dose method is best used in a hospital. Roentgen sickness may be alleviated by proctoclysis with sodium chloride solution. After irradiation of the ovaries, injections of salt solution are unnecessary. As a rule the irradiation should be given in one sitting. In cases of severe anæmia and severe hæmorrhages the liver and spleen should also be irradiated. Of the single dose methods the distant field method appears to be best, especially in cases of large tumors.

The author believes that in the future it will be possible to so increase the deep effect of roentgen irradiation that the four, three, and two field irradiation will be abandoned for the one field method.

ΜΑΤΑΚΑΣ (G)

**Meyer R. and Kaufmann C.** The Value of Biopsy (Ueber den Wert der Stueckchendiagnose). *Zentralblatt f. Gynaek.* 1916, 1, 20.

Of 146 cases in which a portion of the portio was removed for histological examination, carcinoma was found in twenty-six. In fifteen of the latter a clinical diagnosis of carcinoma had been made. On the other hand, carcinoma was found on microscopic examination in two cases in which it was absolutely unsus-

pected clinically. In 117 cases the lesions were benign erosions and ulcerations.

Of 250 specimens of endometrium from cases in which carcinoma was suspected clinically, carcinoma was found in twenty nine. In 23 the lesion was benign. Carcinoma was found in nine cases which appeared clinically to be benign, whereas a definitely benign condition was found in three cases in which a clinical diagnosis of malignancy had been made. Most of the cases in which carcinoma was erroneously suspected were those of undernourished women in the climacterium. So far as re-examinations were possible, no patients whose condition was proved benign were found to have carcinoma later.

In several cases in which the specimen showed carcinoma, no malignancy was found in the extirpated uterus. The authors therefore assume that all of the pathological tissue was removed by the curet tage. When the findings of curettage are doubtful the preliminary test should be repeated before a radical operation is done.

The fact that a benign condition was found in a large number of cases in which malignancy was suspected clinically, proves that a radical operation should never be performed without a biopsy. Meyer and Kaufmann do not believe that biopsy favors the spread of carcinoma, and they warn against the use of the theory of a precarcinomatous state as a justification for operation in doubtful cases. In very rare cases the excision of a specimen from the portio may entirely remove a very small carcinoma. The authors report such a case in which subsequent examination of serial sections proved the surrounding tissues to be entirely free from carcinoma.

FLESH (G)

Schmitz H, Hueper W, and Arnold L. The Significance of the Histological Malignancy Index for the Prognosis and Treatment of Carcinomata of the Cervix Uteri. *Im J Roent genol* 19 6 511 30.

This article is a report of the combined efforts of pathologist and clinician working together for the purpose of ascertaining whether a pathologist can include in his report information that will assist the clinician in the treatment of carcinomata and the determination of the prognosis.

For purposes of the study, carcinomata of the cervix were classified into two large groups, the primary or solid and the tubular or glandular carcinomata. Each of these groups was then divided into four subgroups, the histological and staining characteristics of which are described in detail.

The factors used for the determination of the histological malignancy were: the special cell type of malignancy, irregularities in the size and shape of the cells, distinctness in the outline of the cells, the functional activity of the cells, irregularities in the size and shape of the nuclei of the cells, the staining quality of the nuclei, and the number of mitoses and prophase. Numerical values were attached to percentage variations within each factor and the sum

total designated as the histological malignancy index. The average indices for the various types of carcinoma occurring in the 135 cases studied by this method are tabulated.

For the study of the significance of the malignancy index as regards the clinical course of carcinoma of the cervix, the cases of sixty one of the 135 patients were used. These patients had either survived a three year period and were anatomically well or had succumbed to the disease. The cases were graded according to the extent of the disease indicated by a physical examination and the end result of treatment. The clinical malignancy of the cases was graded according to the results of treatment. Various tables are included showing the relation of (1) the clinical grouping to the cell type, the malignancy index, and the clinical result; (2) the cell type to the malignancy index and the clinical result; and (3) the malignancy index to the clinical result.

The following summary and conclusions are appended:

- 1 The cell types, the differentiation and the anaplastic changes of carcinomata of the cervix have been studied. They were given a numerical value the sum representing the histological malignancy index.

- 2 Immaturity of the cells, a low degree of differentiation, and a high degree of anaplastic changes are invariably associated with a high malignancy index.

- 3 The greater the maturity of the cells, the higher the differentiation, and the less the anaplastic change, the lower the malignancy index.

- 4 The clinical malignancy of a carcinoma depends solely on the results of treatment, provided the same method of treatment is used in every case. The extent of the carcinoma influences the outcome only if it has thereby become a systemic or generalized disease. A carcinoma contained within a well defined area and having a low malignancy index offers a relatively good prognosis.

- 5 Comparing the histological malignancy index with the clinical findings or grouping of the carcinomata and excepting cases with systemic or generalized disease, it is found that a definite relation between the two does not exist.

- 6 The relation of the cell type to the histological malignancy index is definite. The unripe cell type is almost always associated with a high malignancy index.

- 7 The relation of cell type to the clinical result is not as definite as the relation of the malignancy index to the clinical result. The malignancy index shows a definite or proportionate relation to the results of treatment.

- 8 Considering the relation of the malignancy index to the clinical result and excluding the group of cases with systemic or generalized disease, the conclusion is reached that from a histological examination the pathologist can give definite information as to the degree of malignancy expressed in numbers of the malignancy index, which will enable the clinician

ern to choose those cases of carcinoma which may respond with fair prospects to radiation treatment  
ADOLPH HARTUNG M D

Philipp, E., and Gornick, P. The Treatment of Cancer of the Uterus and Vagina at the University Gynecological Clinic, Berlin (Die Behandlung des Gebärmutter und Scheidenkrebses an der Universitäts Frauenklinik Berlin) *Munchen med Wchschr* 19 6, 1921 7

In this report the authors bring up to date the carcinoma statistics of the University Gynecological Clinic of Berlin which were presented before the Gynecological Congress at Berlin in 1920. They review the end results of operative and irradiation therapy in the period from 1913 to 1920.

In all 1,104 cases of carcinoma of fundus and cervix of the uterus and vagina have been treated. Two hundred and thirty five (21.3 per cent) of the patients were still alive five years later. By far the greater majority were treated with the roentgen rays or radium. Only 206 were operated upon. The Wertheim operation was performed. Of 201 women subjected to operation (excluding six who were treated previously with radium), eighty two (40.79 per cent) were free from recurrence after five years. A large percentage of these patients were given post operative prophylactic roentgen irradiation.

The primary mortality after the Wertheim radical operation was 14.92 per cent. In recent years the operative mortality has decreased. The favorable end results of operation the author attributes to the fact that as a rule only the favorable cases are operated upon while those in which the condition is advanced are given irradiation therapy.

Of 805 cases of cervical carcinoma which were treated by irradiation, 180 were operable, 399 inoperable and 226 borderline cases. Of the 15.27 per cent which were cured, 28.33 per cent were operable and 5.76 per cent inoperable. In the year 1916 in which only two patients were operated upon, the incidence of cure in the operable cases treated by irradiation rose to 38 per cent.

Cases of carcinoma of the fundus were treated only by irradiation (at least only cases so treated are mentioned). Of forty which were treated with radium, eighteen (45 per cent) were cured. These were cases of operable carcinoma.

Carcinoma of the vagina has an unfavorable prognosis. Of fifty three patients with this condition who were treated with radium, only seven (13.2 per cent) were living after five years. Of the fifty three cases, only ten were operable. The authors are of the opinion that the results of treatment of carcinoma of the vagina cannot be greatly improved but that the incidence of cure in carcinoma of the corpus may be increased by operative treatment.

For the cure of carcinoma of the cervix they regard operation as the most certain method, but they suggest that possibly when the technique of radium treatment has been further improved, it may give similar good results.

WILLE (G)

Bégouin. Two Deaths Following the Intra Uterine Application of Radium (Deux cas de mort à la suite d'application de radium intra utérin) *Bull Soc d'obst et de gynec de Par*, 1926 xv 137

In 137 cases of cancer of the uterus in which the author used radium a febrile peritoneal reaction which resolved favorably after a month occurred in one and death from peritonitis resulted in two.

One of the patients who died was a woman 68 years of age who had an endocervical epithelioma. As Bégouin believed that hysterectomy would be dangerous in this case, he applied in tandem, two tubes of 13 mgm of radium each filtered by 0.5 mm of platinum and 2 mm of gold and covered by a rubber tube.

The application was made on November 24, 1925 without any incident, and the radium removed November 28. As the number of millicuries was then believed to be insufficient, the radium was reinserted for four days longer. On the following day the patient's temperature was between 36.4 and 37.5 degrees C., and after eight days it rose to 38.4 degrees C. Two days later, abdominal pain and typhoid developed, the general condition became poor and the bases of the lungs were congested. Death occurred fifteen days after the application of the radium.

At autopsy, the peritoneal cavity was found filled with pus up to the diaphragm and a large triangular perforation was discovered in the posterior wall of the uterus. In the body of the uterus there was a fibroma about the size of a hen's egg.

In the other fatal case reported, autopsy did not reveal a uterine perforation. The author therefore concludes that the infection spread through the lymphatic channels. *SAVATORE DI PALMA M D*

Bowing H H. Carcinoma of the Cervix and Fundus Uteri Treated by Combinations of Surgery, Radium, and Roentgen Ray. *Radiology* 1926 vi 487

In all cases of irregular menstrual bleeding or vaginal discharge regardless of its character and the age of the patient, great effort should be made to arrive at an early diagnosis. All women should be instructed concerning the gravity of the apparently insignificant signs usually associated with early phases of carcinoma of the uterus in order that they may understand the importance of being examined as soon as possible following their onset. The most efficient method of combating neoplastic disease of the cervix and fundus uteri is the use of surgery, radium, and the roentgen rays in various combinations. This treatment demands close co-operation between the first examining physician, the surgeon, the pathologist and the radiotherapist.

Lahey F H. Removal of the Cervix in Hysterectomy for Benign Lesions. *Surg Clin N Am* 1926 vi 593

Lahey describes a method of removing the major portion of the cervix in hysterectomy for benign



diseases by transcervical excision without danger to the uterus without shortening the vagina and without adding to the time necessary for the usual supracervical hysterectomy. He has performed the operation eighty six times since he first described it and believes it has practically all of the advantages of a complete hysterectomy with none of the disadvantages of the latter.

After the uterine appendage have been tied off and cut and the uterine arteries on either side of the cervix have been clamped with Ochsner clamps and cut the uterus remains attached only by the cervix. An incision is made in the anterior surface of the cervix and grasped with double hooks and a similar incision made in the posterior surface and likewise grasped with double hooks. This incision is made only to a depth of about  $\frac{1}{8}$  in and completely encircles the cervix.

By exerting traction on the uterus and continuing the incision downward keeping it always only about  $\frac{1}{8}$  in from the outer wall of the cervix the cervix is gradually pulled upward and dissected from its shell just as the finger of a tight glove is everted by the extraction of the finger from it. The entire cervix is finally extracted a gauze strip is pushed through the shell of the cervix into the vagina and the tumps of the broad and round ligaments are sutured into the cavity left by the removal of the cervix. The only disadvantage in the technique is the oozing which may now occur but this can be controlled by placing a mattress suture through the shell of the cervix.

By the removal of the cervical stump the danger of malignancy is lessened and endocervicitis is prevented.

HARR W FINK M D

#### ADNEXAL AND PERIUTERINE CONDITIONS

Pratt J P and Allen E. Clinical Tests of the Ovarian Follicular Hormone with a Note on Experimental Work on Monkeys. *J Am U* 1 1926 XXXVI 1964

From experiments on monkeys and earlier experiments on lower mammals with regard to the ovarian follicular hormone the authors draw the following conclusions:

1 The ovarian follicular hormone starts the periodic growth processes in the female genital tract.

In case ovulation occurs the corpus luteum in woman and perhaps also in other primates may continue this anabolic endocrine influence which probably decreases as the next menses approach.

3 Menstruation seems to be due partly to the temporary absence of this secretion after it has been acting for a certain time.

4 Since ovulation followed by corpus luteum formation often does not occur a specific secretion of the corpus luteum is not a necessary causal factor in the menstrual cycle. That the corpus luteum may have a regulatory influence is not questioned.

5 The substance or a very similar one is probably secreted by or stored in the placenta. Its contin-

uous availability throughout the gestation period would account for the absence of menstruation during pregnancy.

Five series of injections of the ovarian follicular hormone in women with an artificial menopause have been made by the authors. All of these patients were in the third decade of life. The interval between the removal of the ovaries and the injection ranged from two months to two years. In each case examination of the patient before the injection showed the atrophy or involution of the uterus which follows a loss of the ovaries. The dosage used ranged from 0.5 to 3 rat units morning and evening daily for two or three weeks. The results were fairly uniform.

A few days after the injections were begun an increase in the size of the uterus was noted. This growth continued for several days. During the latter days of the injection period the rapidity of the growth was less noticeable. As soon as the injections were stopped the uterus diminished in size returning in a few days to the size noted before the injections were begun. At the height of its growth some change of color and a definite increase in the circulation of the cervix were noted. On two occasions after the injections were stopped a very small streak of blood appeared.

The patients also noted the increase in the size of the uterus and mentioned the feeling of pressure and heaviness in the pelvis which they had formerly experienced especially at the time of menstruation. Many other subjective symptoms were noted but these must be greatly discounted on account of the patients' desire to have them reproduced.

The outstanding features associated with the natural menopause are the hot flashes and nervousness. Since these are subjective symptoms they do not constitute especially good criteria of the effects of the follicular hormone. However all of the patients treated for them reported improvement.

In cases of scanty menstruation six series of injections were made. The patients chosen were in the second or third decade of life. In all of them menstruation had been irregular either in interval or in amount since its onset. One of these cases was of unusual interest in that two years previous to the study the patient had been given thyroid extract by mouth with a resulting increase in the frequency of menstruation but not in the amount.

In experiments on immature animals one of the striking results was the hastening of sexual maturity. The oestrous cycle being established much earlier than in the controls.

CARL H DAVIS M D

#### MISCELLANEOUS

Kauffmann E. Cancer Statistics Before During and Since the War (Krebsstatistische Untersuchungen mit besonderer Berücksichtigung der Zeit vor während und nach dem Krieg). *Zentralbl f Gynack* 1926 I 199.

This article is an interesting contribution to the question as to the importance of general living con-

ditions in the causation and pathogenesis of cancer of the female genitalia

In a study of about 2 000 cases of carcinoma of the genital organs (uterus, vulva, vagina, and ovaries) it was found that before the war the incidence of such cancers was highest between the ages of 50 and 55 years, while during the war it was highest between the ages of 46 and 50 years and since the war it has been highest between the ages of 41 and 45 years. The change in the incidence during the third decade from 4 per cent before the war to 3.9 per cent during the war and 5 per cent since the war is not regarded by the author as of much significance as it comes within the limits of error. The same conclusion is drawn with regard to the slight increase in carcinoma between the ages of 56 and 70 years.

With regard to carcinoma of the cervix it was found that, since the war, there has been an increase in the incidence of the condition between the ages of 20 and 35 years, while between the ages of 51 and 55 years there has been a decrease from 18 per cent before the war to 11.3 per cent since the war. On the whole, however, there has been no noteworthy change in the age incidence. The findings with regard to carcinoma of the fundus were similar.

Cancers of the vulva and vagina seem to show a higher incidence in older women, but this may be due to the increase in cancers in general.

Cancers of the ovary, which have become less frequent since before the war, show a shifting of the highest age incidence similar to that of cancer of the uterus.

With regard to the relationship between pregnancy and the incidence of cancer the author states that no definite relationship between carcinoma of the cervix and the number of children can be established. Numerous births do not favor the appearance of cancer. It is possible, however, that in the case of a woman with a predisposition to malignancy the trauma of one or more labors might stimulate the development of cancer. A higher incidence of cancer in nulliparæ and women who had borne few children as compared with those who had had

numerous children may be ascribed to differences in living conditions. Carcinoma of the body of the uterus was most frequent in nulliparæ and women who had borne few children.

From the standpoint of the social status it was found that cancer is three times as common among the poor as among the rich. Under the unfavorable nutritional conditions which prevailed during the war the incidence of cancer increased among the poor but decreased among the rich. Since the war, the incidence in both groups has returned to the pre war level.

In general, cancer is twice as common in large cities as in small towns and rural districts.

With regard to the inheritability of cancer the author states that a predisposition to the condition may be inherited. Among the cases reviewed there were numerous cancer families.

In general, the investigation reported seems to indicate that social and cultural factors play a role in the occurrence of cancer. GRAFF (C)

**Reeb. Rectal Lesions Following Gynecological Laparotomies** (Lésions du rectum au cours des laparotomies gynécologiques) *Bull. Soc. d'obst. et de gynec. d'Par.* 1926 VI 154

Reeb reports five cases of rectal lesions due to injury of the rectum in a gynecological operation. In three cases the laparotomy was performed for puerperal adnexitis in one case for intraligamentous fibromyoma and in one for an infected tubal pregnancy. In one, the surgeon's assistant, instead of introducing a vaginal drain into the cul de sac introduced it through the rectum and the surgeon opened the rectum in cutting for the drain. Recovery resulted in all of the cases except the last one mentioned.

Of the three cases in which the rectum was sutured primary union resulted in only one. In the two others, a fistula developed on the seventh or eighth day but closed spontaneously between the thirteenth and twenty-fifth days. The non-sutured lesion closed on the tenth day.

SALVATORE DI PALMA M.D.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

**Lundh G** The Problem of Age and Primiparity  
*Acta obst et gynec Scand* 1926 15 Supp

From a study of more than 7 000 primiparae between the ages of 13 and 47 years who were seen at the Women's Clinic of the University of Lund in the period from 1900 to 1922 the author draws the following conclusions

1 There seems to be a direct relation between the time of the first menstruation and the occurrence of the first pregnancy the later the first flow the later the first pregnancy However on account of the unreliability of the patient's statements with regard to the onset of menstruation not much importance can be attributed to this finding

Of the morbid conditions occurring during gestation only the toxemias directly related to pregnancy—hyperemesis albuminuria and eclampsia—show an increase in the oldest and the youngest primiparae In the oldest women they show a moderate increase and in the very youngest only a very slight increase

3 The frequency of premature labor is highest among the youngest primiparae

4 The optimum duration of labor is reached at about the twenty second year Therefore from this point of view the best time for a first labor is between the nineteenth and twenty sixth years After the twenty fifth year the duration of labor lengthens progressively in complicated cases its prolongation is particularly increased Labor is prolonged also in the very youngest primiparae but in these the rise seems less dependent upon complications

5 Sure evidence as to the cause or causes of the proved prolongation of labor with age is difficult to obtain from a statistical investigation Judging from the case records a number of complications more or less unfavorable to the course of labor—contracted pelvis anomalous presentation of the fetus and premature rupture of the membranes—may certainly be considered as more common in old primiparae but these cannot be regarded as the actual cause of the prolongation The principal cause is probably disuse atrophy resulting in inadequacy of the labor pains and rigidity of the soft parts

6 Among the other complications of labor eclampsia shows a definite increase in old primiparae and to some extent also in the youngest

7 The frequency of all types of operative interference and also of perineal ruptures shows a marked rise with advancing age and is lowest in the very youngest primiparae

8 There is a prolongation of the placental stage in old primiparae and also in the youngest but in the latter it is slight The number of interventions

in this stage of labor shows a considerable increase with age

9 Age does not seem to exercise any influence upon the weight length head dimensions or sex of the child The frequency of twins rises with the age of the mother

10 Infantile morbidity and mortality show a marked increase with the age of the mother

11 The maternal morbidity in the puerperium shows no definite influence from age As regards the mortality a certain influence from age cannot be excluded especially because of deaths from eclampsia

12 The proved increase with age in the risks encountered by primiparae appears to be manifested especially in women who are married for quite a long while before they become pregnant

**Andréodis and Ballard** The Obstetrical History of a Patient Who Had Seven Pregnancies After a Cesarean Section (Histoire obstétricale d'une femme ayant eu sept grossesses après une opération césarienne) *Bull Soc d'obst et d'gynec de Lar* 19 6 15 50

The authors report the case of a rachitic woman with a deformed pelvis who was delivered by cesarean section at the age of 20 years The patient's second pregnancy terminated in abortion in the sixth month In her third pregnancy a living child weighing 2 0 kilos and presenting by the breech was extracted by the Champetier method after the patient had been in labor for eight hours The fourth pregnancy ended in abortion in the third month and the fifth ended in abortion in the sixth week The sixth terminated in the spontaneous delivery of a living child at term The child died from meningitis at the age of 15 months The seventh pregnancy terminated in the premature delivery of a living child in the eighth month The child died from debility a month later In the eighth pregnancy the fetal head which was high above the pelvic brim and to the left failed to become engaged after full dilatation of the cervix and as several trials with forceps were unsuccessful and the fetal heart could not be heard the head was perforated with a basiotribe A child weighing 3 06 kilo without the brain was extracted **SALVATORI DI PALMA M D**

**Giripuy Lassalle and Sendrall** The Participation of the Fetus and the Thyroid in the Elevation of the Basal Metabolism During Pregnancy (La participation fœtale et thyroïdienne dans l'élévation du métabolisme basal pendant la grossesse) *Gynec et obst* 1926 xiii 173

The authors discuss the question as to the cause of the constant and marked elevation of the basal

metabolism which is observed during pregnancy. Toward the thirty eighth week of pregnancy the metabolism is 35 per cent above the normal and after delivery it falls rapidly to 15 per cent on the third day and to normal on the seventh day.

The manifest activity of the thyroid gland which is often noted during pregnancy suggests the plausible theory, accepted by a number of obstetricians, that the increased basal metabolism is the result of a physiological hyperthyroidism. However this theory does not explain the fact that the basal metabolism is further increased by a twin pregnancy and that after delivery or the death of the fetus in the uterus the metabolism rapidly returns to normal.

The authors believe that the fetus influences the metabolism directly without the intervention of the thyroid, otherwise the effect of delivery or the death of the fetus would be less prompt. Of sixteen patients studied by the authors, only one showed symptoms of hyperthyroidism as determined by the physical examination, the metabolic rate, the oculo-cardiac reflex, and the Goetsch and Claude Poria reactions.

ALBERT F. DE GROAT, M.D.

**Talbot J. E. Toxæmia of Pregnancy.** *Atlantic M J* 1916 LVII 671.

The author believes that toxæmias of pregnancy are always associated with foci of chronic infection from which the infection is borne by the blood to other organs including the placental site where it produces infarction. In support of his theory he cites the fact that bacteræmia, pyæmia and retro-placental abscesses are frequently associated with toxæmias. He advises against treatment of chronic foci in the presence of a toxæmia.

ALBERT W. HOLMAN, M.D.

**Polak J. O. The Present Status of the Toxæmias of Pregnancy.** *J Am M Ass* 1916 LXXXII 26.  
**Greenhill J. P. Eclampsia at the Chicago Lying In Hospital: Immediate and Late Results.** *J Am M Ass* 1916 LXXXII 228.

**Davis A. B. and Harrar J. A. Toxæmia of Pregnancy: 879 Cases with Convulsions at the New York Lying In Hospital.** *J Am M Ass* 1916 LXXXIII 233.

**McNeile L. G. and Vruwink, J. Magnesium Sulphate Intravenously in the Care and Treatment of Pre Eclampsia and Eclampsia.** *J Am M Ass* 1926 LXXXVII 236.

POLAK discusses hyperemesis, the pre eclamptic toxæmias and eclampsia. He states that at present all clinical evidence tends to substantiate the theory that hyperemesis is due to a vicious cycle beginning with a carbohydrate deficiency, and that the pathological changes found in the liver, kidneys and blood are the result of starvation and dehydration. Other causes are a neurogenic factor and intestinal intoxication. The carbohydrate deficiency is due to the unexpected demands for glycogen of the fetus and growing uterus and a deficiency due to the nausea and vomiting and consequent lessened in-

take. Continued vomiting decreases the urinary output, increases the concentration of the body fluids, and results in the development of general toxic symptoms. That the injury to the kidney is not great is shown by the rapid disappearance of the albumin from the urine after recovery, when the uterus is emptied, or when diuresis is produced.

Pre eclamptic toxæmia is the result of a dysfunction and improper correlation of the eliminative system and endocrine control.

GREENHILL has analyzed eighty three cases of eclampsia which occurred in 79,587 obstetrical cases admitted to the Chicago Lying In Hospital in the period from July 1, 1917 to January 1, 1916.

DAVIS and HARRAR report upon 879 cases of toxæmia occurring in 152,748 obstetrical cases admitted to the New York Lying In Hospital.

MCNEILE and VRUWINK discuss the use of magnesium sulphate in the treatment of 142 cases of pre eclamptic and eclamptic toxæmias.

Polak, Davis and Harrar, McNeile and Vruwink agree in general that the treatment should include the administration of morphine rest in bed the forcing of fluids, a low protein salt free diet and the intravenous administration of magnesium sulphate. Polak gives 100 c cm. of a 25 per cent solution of magnesium sulphate. McNeile and Vruwink give 20 c cm. of a 10 per cent solution and Davis and Harrar 4 c cm. of a 50 per cent solution, repeating if necessary. In cases with any manifestation of toxæmia Polak combines the forcing of carbohydrates with the administration of insulin by mouth or intravenously.

Greenhill favors emptying the uterus in most cases. In the cases of primiparæ with a viable infant and an undilated cervix he performs cesarean section under local anæsthesia.

McNeile also advocates section in the cases of primiparæ if there are no results from the conservative treatment.

Davis recommends section only for cases in which there is no improvement under conservative treatment.

Polak advises against section unless there is an obstetrical indication. ALBERT W. HOLMAN, M.D.

**Stroganoff B. The Improved Prophylactic Method of Treating Eclampsia with Comments on the Variations Suggested by Williams, Stander, Spieldel and King.** *Am J Obst & Gynec* 1926 XI, 756.

The improved prophylactic method which for twenty eight years has been giving the best results in the prevention of eclampsia is used at the present time without modification by very few obstetricians. Notwithstanding the fact that many thousands of cases have been treated successfully by this method and its variations, the incredulous attitude of many physicians toward it has not been changed.

Stroganoff attributes the failure of others to obtain as favorable results with this method to imperfect technique. He believes they have not used the

drugs in the proper combinations or for the proper periods of time and that their patients have not received the requisite nursing

On the basis of 300 cases of eclampsia treated by the improved prophylactic method and 578 earlier cases treated by a less perfect form of the prophylactic method Stroganoff has reached the conclusion that an almost absolutely favorable prognosis can be given for the mothers in cases that are not neglected

The mortality of eclampsia and albuminuria in relation to delivery is next to if not equal to that of sepsis. The author has tried to set up a standard of possible attainment from the use of the improved prophylactic method. He asserts that its variations have the effect merely of decreasing its value

On the basis of theoretical analysis as well as a consideration of the facts it appears that variations of the conservative treatment of eclampsia can scarcely give better results than the improved prophylactic method which can be applied to patients at home as well as to those in living in hospitals

E. L. CORNELL M.D.

**Netzer F.** The Treatment of Placenta Prævia (Zur Therapie der Placenta prævia) *Deutsche med Wchenschr.* 1925 li 1093

The author reports the results of the treatment of placenta prævia at the University Gynecological Clinic at Jena during the period from 1910 to 1925 inclusive. Of the 5754 births occurring during this period 120 (2.09 per cent) were complicated by placenta prævia. In thirty-six (30 per cent) the placenta prævia was of the central type in forty-nine (41 per cent) of the lateral type and in thirty-five (29 per cent) of the marginal type

Because of the hæmorrhage only a relatively small number (29 per cent) of the patients reached term. One fourth reached the last quarter of pregnancy but the rest were delivered before the eighth month. There were eight maternal deaths six due to hæmorrhage one to peritonitis and one to embolism. The maternal mortality was therefore 6.66 per cent. Seven of the deaths occurred during the time (1918) when the older methods of delivery were used. In the last fifty-four cases in which the individual method of treatment was employed there was only one maternal death

The sixty-one mothers who were delivered up to the year 1918 according to the older method by the vaginal route gave birth to sixty-two children. Of the thirty-eight living infants twenty-five died during delivery. Of the fourteen which were not viable ten died before the mother entered the clinic

Since 1919 the individual method of delivery has been used. Of the fifty-four children born since that time twenty-nine were born alive but of these four died during delivery. Twenty-two were not viable (twenty weighed less than 1500 gm and 2 less than 1000 gm) and three died in utero

In the puerperium spontaneous expulsion of the placenta occurred in 27.8 per cent of the cases the

Credé method was necessary in 52 per cent and manual extraction of the adherent placenta was done in 20.2 per cent. In eleven cases (9.7 per cent) clamping of the parametrial tissues was necessitated by atony and in seven cases (5.9 per cent) by tears of the cervix

CONRAD (G)

**Wagner H.** The Cases of Placenta Prævia at the Lying In Hospital in Karlsruhe During the Years 1893 to 1923 (Die Placenta prævia Fælle des Wöchnerinnenheims Karlsruhe in den Jahren 1893-1923) *Ztschr f Geburtsh u Gynaek* 1926 lxxv 603

Among 19,207 deliveries at the Karlsruhe Lying In Hospital in the thirty year period from 1893 to 1923 there were 172 cases of placenta prævia. The multiparæ with placenta prævia very considerably outnumbered the primiparæ with the condition. In these cases there were seventy-two full term children the fetal mortality was 52.9 per cent the maternal mortality 8.1 per cent and the maternal morbidity 22 per cent. Three hundred and twenty-four cases showed a fairly normal course

In the early years packing was done forty-eight times with a generally satisfactory result but the danger of infection was very great in these cases as compared with those in which packing was not done. Later up to the year 1905 combined version was the most important part of the treatment. In thirty-one of seventy-one cases further expulsion with extension traction after the version was left to the natural powers and in forty an earlier or later extraction was added. The latter method gave a better result for both the child and the mother but was associated with a somewhat higher puerperal morbidity

The metruerisis so warmly recommended by the Kuestner school and practiced after 1905 was disappointing as in thirty-eight cases in which it was followed by version and extraction there were six fatalities from hæmorrhage and although the percentage of children born alive was slightly higher than in other cases the puerperal morbidity was 10 per cent higher

The introduction of cesarean section first of the classical type and later of the transperitoneal type resulted in marked improvement. In the cases so treated there was no maternal mortality the puerperal period was febrile in only 8.3 per cent and the child was born alive in 83.3 per cent

CORDUA (G)

**Keller.** The Treatment of Cystic Tumors of the Ovary During Pregnancy and at the Time of Delivery (Traitement des tumeurs kystiques de l'ovaire pendant la grossesse et lors de l'accouchement) *Bull Soc d'obst et de gynéc de Par* 1926 xv 141

Practically all obstetricians recommend the removal of an ovarian cyst during pregnancy. According to Williams torsion of ovarian cysts occurs three times as often during pregnancy as during the non-

pregnant state, and to avoid this complication the ablation of the cyst is indicated.

At the time of delivery an ovarian cyst which does not ascend with the uterus may obstruct the passage of the fetus. After delivery infection of the cyst contents may cause serious complications.

The author reports three cases of ovarian cyst associated with pregnancy. The first was that of a primipara 33 years of age who was seen for the first time in the fifth month of pregnancy. Examination revealed a large cystic tumor which completely filled the posterior cul de sac. The cervix was small and pushed behind the symphysis by the mass. The fetal heart was not heard, but fetal movements were felt. A diagnosis of ovarian cyst or fibromyoma was made.

As the patient insisted that the life of the child should not be endangered, intervention was postponed. Subsequently a positive diagnosis of ovarian cyst fixed in the posterior cul de sac was made. One hour after the rupture of the membranes in the ninth month, cesarean section was done and after the uterus had contracted the ovarian cyst was removed. The cyst measured 30 by 20 cm. On the right side an ovarian dermoid cyst the size of a lemon was found. A resection of the right ovary was therefore done. The patient made an uneventful recovery.

The second case reported was that of a primipara 24 years of age who came to the hospital because of an incomplete abortion at the end of the second month of pregnancy. A curettage was performed and a cyst of the left ovary was found. The patient was later re-admitted to the hospital in the second month of pregnancy. The ovarian cyst was then about the size of an orange. Operation was advised but refused. In the ninth month of her pregnancy the patient was again admitted to the hospital. The cyst then completely filled the pouch of Douglas, pushing the cervix behind the symphysis. As conditions did not seem favorable for intervention, the patient was allowed to go into labor with the hope that the uterine contractions would push the cyst up into the abdominal cavity. Labor pains began and then stopped. Two days later, labor began again, and on vaginal examination the cyst could not be felt. Delivery resulted normally. On the tenth day another examination failed to reveal the cyst, this proving that it had been ruptured by the uterine contractions and its contents absorbed.

The third case was that of a primipara who had noticed a gradual enlargement in the size of her abdomen for a year. No other signs or symptoms were present. When the patient came to the clinic to determine the stage of her pregnancy she stated that her last menstruation had occurred five months previously. On examination, the abdomen was found very much distended by intra-abdominal fluid. At first it was impossible to ascertain definitely whether or not the fluid was free in the abdominal cavity. However, a diagnosis of large ovarian cyst was made. The cyst was punctured through a small in-

cision made below the umbilicus, 11½ liters of clear fluid were evacuated, and the rest of the cyst, which belonged to the left ovary, was ablated. The pregnancy continued to term.

SALVATORE DI PALMA M.D.

**Gayet Extra Uterine Pregnancy Elimination of the Fetus into the Bladder and Then by Way of the Urethra. Right Pyonephrosis Nephrostomy Ureterolysis** (Grossesse extra uterine élimination du fœtus dans la vessie puis par l'uretère pyonephrose droite néphrostomie uretérolyse) *J. d'urolog. méd. et chir.* 1926 xvi 436

The patient whose case is reported was a woman 25 years old who had had two normal pregnancies the last one four years previously. For two years she had had attacks of abdominal pain followed by the passage of gravel in the urine. In April she had hæmaturia for three days. In June she had an attack of acute pain localized in the right flank and associated with vomiting, vertigo, and syncope. Menstruation had not occurred since April.

A diagnosis of extra uterine pregnancy was made, but on account of enlargement of the right kidney and pyuria the possibility of a pyelonephritis of pregnancy was considered. The urine cleared up quickly under treatment with urotropine, but about two weeks later the pain in the right lumbar and iliac fossæ returned and there was daily hæmaturia with the expulsion of debris. The urine was found to contain blood and colon bacilli. On the following night there was an attack of acute pain with loss of the ability to urinate and the sensation of an obstruction in the urethra. Soon afterward the nurse withdrew from the urethra a protruding structure which appeared to be a four months' fetus. Unfortunately this was thrown away before further examinations could be made. Its expulsion was followed for several days by hæmaturia and metrorrhagia. The latter was relieved by digital curettage. The uterine cavity was small and contained no retained placenta.

In October the patient had another attack of pain, oliguria, pyuria and fever with enlargement of the right kidney. Vaginal examination revealed a soft rounded mass in front of the uterus. On cystoscopic examination a papillomatous mass was found on the upper wall of the bladder. In the center of this mass there was a dark area into which a ureteral sound could be passed for a distance of 3 cm. The mass was believed to be a placenta which had entered the bladder during the course of a tubal pregnancy and the dark area the communication between the bladder and the tube.

A shaggy clotlike mass which was later passed from the urethra was examined histologically and found to consist of fibrin, necrotic cells, and in one place rounded structures which appeared to be necrotic placental villi. Exploration of the right ureter two months later for a suspected ureteral stone, revealed evidences of a severe pelvic inflammation and adjacent to the bladder and adherent

to the ureter a mass which was identified as the right ovary and the remains of the right tube

The author gives a brief review of the literature Unlike his case most of the cases of vesical delivery which have been recorded were cases of long standing encysted extra uterine pregnancy

LAWRENCE JACQUES M D

**Meyer C Extra Uterine Pregnancy Perforating the Urinary Bladder** (*Grossesse extra utérine perforée dans la vessie*) *Bull Soc d'obst et de gynec de Par* 1926 xv 145

A woman 30 years of age consulted the author for the relief of vague pains in the lower abdomen Menstruation had always been normal in most respects but occurred sometimes before and sometimes later than expected The last menstruation had been two days late but otherwise was practically normal

Vaginal examination revealed slight tenderness and contraction of the fornices due to old adhesions The cul de sac was free Vaginal douches were prescribed

Twenty four hours later vomiting began and the abdomen became distended The abdomen was only slightly tender however and nothing definite could be felt on palpation There was no vaginal bleeding and no collapse

Two days later the abdomen was soft the vomiting had ceased and the temperature was normal The general condition then seemed to be excellent but the patient complained of tenesmus and burning on urination On vaginal examination a small tender tumor was then felt in the left cul de sac A diagnosis of pyosalpinx and pelvic peritonitis was made

Suddenly large quantities of blood were expelled through the urethra and a cystoscopic examination revealed a tear in the left fundus of the bladder Catheterization of the ureters yielded normal urine

Laparotomy revealed an intraligamentous extra uterine pregnancy on the left side which had perforated into the bladder A subtotal hysterectomy with removal of the left adnexa was done and abdominal drainage established A slight amount of blood was found in the urine for two days Convalescence was uneventful

The author attributes the abnormal implantation of the ovum and the perforation of the bladder to disease of the adnexa causing the tube to become adherent to the bladder with a portion of the broad ligament

SALVATORE DI PALMA M D

**Novak E Combined Intra Uterine and Extra Uterine Pregnancy with a Report of 276 Cases Including Two New Cases Observed by the Author** *Surg Gynec & Obst* 1926 xliii 6

Novak has collected thirty four cases of coexisting intra uterine and extra uterine pregnancies which have been reported since Neugebauer's second paper in 1913 These and two cases of his own bring the total number to date up to 2,6

The cases are grouped into those with a history suggesting ectopic pregnancy and those in which the signs of the intra uterine pregnancy dominate the clinical picture In Neugebauer's first series of 170 cases the diagnosis was made before operation or delivery in only 4 per cent and in his second series of seventy four cases in only 10 per cent If very definite uterine enlargement can be made out in a case which otherwise suggests ectopic pregnancy the possibility of the combined condition should be borne in mind especially if there is no external bleeding In some case both pregnancies have advanced to term and in nine of such cases both children were delivered alive the abdominal child by section and the intra uterine child usually by the natural canal

The treatment must be adapted to the indications of the individual case As it is the rupture of the extra uterine pregnancy which is responsible for the symptoms in the larger number of cases and as this occurs almost always in the early months of pregnancy a laparotomy is performed even if the association of intra uterine pregnancy is not recognized In the occasional case abortion of the intra uterine pregnancy has already occurred but has not been recognized If continuous and free bleeding occurs and a unilateral mass is present it is well to perform a gentle curettage and make a microscopic examination of the curettings before resorting to laparotomy The finding of villi settles the diagnosis of a recent intra uterine pregnancy The extra uterine pregnancy should then be managed along the usual surgical lines

The author gives a brief report of each of the thirty four cases described since 1913

ALBERT W HOLMAN M D

## LABOR AND ITS COMPLICATIONS

**Kurtz II The Etiology of Lacerations of the Uterus with Regard to the Pathologic Anatomical Conditions** (*Die Ätiologie der Uterus zerreissungen unter Berücksichtigung der pathologisch anatomischen Verhältnisse*) *Ztschr f Geburtsh u Gynaek* 1926 lxxxix 615

Kurtz discusses only spontaneous ruptures of the uterus Important factors in such ruptures are muscle defects due to abrasions other intra uterine procedures including those of a criminal nature injuries of the uterine wall in manual separation of the placenta the Braxton Hicks maneuver etc congenital malformations of the uterus proliferation of the mucous membrane into the musculature pathological insertions of the ovum placental formation following section a poor general condition with decreased resistance of the uterine musculature and degenerative and inflammatory processes of the uterine wall Often however the cause cannot be determined In conclusion the author calls attention to the cases of rupture which occur in conjunction with the use of pituitary preparations such as pituitrin

CORDUA (G)

Niedermeyer: The Defects and Dangers of Pubiotomy (Fehler und Gefahren bei der Pubiotomie)  
*Zentralbl f Gynaek* 19 6 1 2 1

The author discusses the defects and dangers of pubiotomy on the basis of two cases with numerous complications which he reports in detail. This procedure is associated with the danger of hemorrhage from the injury of hollow organs and from the sawed bone, of hematoma formation with its sequele, infection, suppuration, and possibly thrombosis of unsatisfactory union of the pelvic fracture with pseudarthrosis of injuries of the bladder with incontinence, of phlegmon of the space of Retzius, the prevesical tissue, and of injuries of the soft tissues especially in primiparae.

These dangers, which he was unable to eliminate even with the use of a special instrument he devised to facilitate the operation, have led the author to change his opinion regarding pubiotomy. As the technique of cesarean section has been greatly improved, he now prefers this operation to any procedure for widening the pelvis. FRUGARTIN (G)

#### PUERPERIUM AND ITS COMPLICATIONS

Masleri N: The Pathogenesis of the Puerperal Psychoses (Contributo allo studio della patogenesi delle psicosi puerperali). *Riv Ital di ginec* 1926 14 163

Of twenty four cases of puerperal psychosis studied by the author the condition occurred between the third and eighth months of pregnancy in five (20.8 per cent), during the first week of the puerperium in eleven (45.8 per cent), and between the fifth and eighth months of the nursing period in eight (33.3 per cent).

In ten cases (41.6 per cent) the condition was of the amental type, in seven (29.2 per cent) of the manic depressive type, and in one (4.2 per cent) of the hysterical type. Of those in which it developed during pregnancy two were of the phreno epileptic type, one of the phreno hysterical type, one of the phreno manic depressive type, and one of the phreno amental type. Of those in which the condition developed during the puerperium, seven were of the phreno amental type, three of the dementia praecox type, and one of the recurrent phreno epileptic type. During the nursing period the phreno manic depressive type developed in six and the phreno amental type in two.

The duration, course, and prognosis of the various types differed considerably. The prognosis is most favorable in the amental type. In this condition heredity does not seem to be a factor. In most of the cases there was only one attack which lasted, on the average, for from four months to a year. Occasionally, however, the duration of the attack was only a week, and occasionally the condition recurred in later years independently of the gravid state, with attacks having the characteristics of a manic depressive psychosis. The author believes that in the latter type of case the first attack of the amental

form was in reality the beginning of the manic depressive insanity.

Of the ten patients with the amental type of psychosis, six were cured, one died during the first attack, and three had recurrences with attacks of the manic depressive form.

Of the seven women with the manic depressive type of psychosis three were cured at the time this report was made, not having had any attacks for several years and four had been in the insane asylum for several years.

Of the three patients with dementia praecox, two died and one has been in the asylum for twelve years. The author believes that in this type of psychosis the prognosis is invariably poor.

Of the four patients with a psychosis of the hysterical epileptic type, three are insane and one has recurrences of the condition.

The author draws the following conclusions:

1. The psychoses which have their first manifestation during pregnancy constitute about a sixth of all psychoses in the female.

2. They occur more often during the puerperium, less often during the nursing state, and still less frequently during pregnancy.

3. Of the psychoses which occur during pregnancy and the nursing period, those of the depressive form are most common. The manic forms occur usually during the puerperium.

4. In the pathogenesis of the puerperal psychoses there are many factors. In the amental forms, the serious organic changes due to exhaustion and toxic or infectious processes may be responsible. In the others there is a psychopathic heredity. In all of the forms the changes occurring in the hormonal interglandular equilibrium during the gravid state and toxemia are of importance.

5. A cure is obtained in about 60 per cent of the cases of the amental type, in 35 per cent of those of the manic depressive type, in none of those of dementia praecox, and in 25 per cent of the cases of the hysterical epileptic type.

SALVATORI DI PALMA, M D

Hjggström, P: New Following Cause in Section (Ueber Neue nach Kaiserschnitt). *Acta obst et gynec Scand*, 1926 14, 286

In addition to five cases of his own of intestinal obstruction following cesarean section, the author has collected thirty cases from the literature. The most common cause of this complication is the formation of adhesions between the uterus and other organs in the abdominal cavity.

The measure used in the diagnosis should include auscultation of the abdomen, a white blood cell count, and X-ray examination. In the differential diagnosis early peritonitis must be considered.

The prevention of adhesions after cesarean section requires a good technique, strict asepsis, and careful hemostasis. The incision in the uterus should be made retroflexibly in the cervix and not in the corpus or fundus.



The treatment of postoperative ileus should be begun as soon as possible. High intestinal lavage should be tried first. If this fails to give the desired result a second laparotomy should be performed for the removal of the cause of the obstruction. Enterostomy should be used in only exceptional cases.

The prognosis of ileus following caesarean section is unfavorable, the mortality being between 30 and 50 per cent, but the author believes it can be improved by earlier operation for the removal of the cause of the obstruction.

**Schwarz O and Dieckmann W J Anaerobic Streptococci Their Role in Puerperal Infection** *South M J* 1926 xiv 470

The role of anaerobic streptococci as a causative factor in puerperal infection has received little consideration by English and American obstetricians. The author believes that many postpartum infections with negative cultures but with obvious clinical infections would be found positive if cultures were made for anaerobic organisms.

In 1905 Little reported a case of serious puerperal infection due to anaerobic streptococci which was seen on the service of Williams.

Schottmuller in 1910 reported twenty five cases of infection with an anaerobic streptococcus in which the mortality was 50 per cent. Most of these were puerperal infections following abortion. In this

group the mortality was 41 per cent. In puerperal thrombophlebitis due to anaerobic streptococci the mortality was 78 per cent. Schottmuller objects to the view that these bacteria are parasites invading the body after disease. He regards them as virulent pathogenic organisms because when once they have invaded the tissues the thrombi or blood stream they have pathological properties. Because of the foul smelling lochia due to its presence in puerperal sepsis Schottmuller named the organism which he isolated in his series of cases the streptococcus putridus.

In a monograph published in 1923 Schottmuller cited 231 fatal puerperal cases following labor in which the streptococcus putridus was found seventy two times.

Of 165 uterine cultures and blood cultures made by the authors in suspected infected cases seen since July 1924 sixty seven were positive for an anaerobic streptococcus.

This organism like those of other puerperal infections has the power of destroying red blood cells and lowering the haemoglobin content of the blood. Blood transfusion by the citrate method was advised. From 500 to 800 c.c. of blood was given at intervals of from three to seven days. Forced feedings with the nasal tube if necessary and thorough uterine cleaning are necessary adjuncts.

CHARLES I. DuBOIS, M.D.

# GENITO-URINARY SURGERY

## ADRENAL, KIDNEY, AND URETER

Ivanitskij, M F The Anatomy of the Renal Pelvis (Zur Anatomie des Nierenbeckens) *Verhandl d 16 russ Chir Kong*, Moscow 1924, p 638

The author studied the form of the renal pelvis by the corrosion method in eighty five cadavers. Three types were found (1) a wide, plump pelvis without major calices, (2) the so called 'absent pelvis in which the major calices, becoming confluent, go directly over into the ureter, and (3) the normal pelvis with major and minor calices.

The last form is typical for the human being. According to the classification of Schewkunenko it is the complete type. It is found in 70 per cent of human bodies and is associated with a moderately wide inferior thoracic aperture. In cases of extremely wide inferior thoracic aperture, the first type mentioned is found. This is to be regarded as the embryonic type. In cases of narrow aperture, the second type is found. This form is characteristic of certain mammals such as the sea lion and the bear. In man the first and second forms are to be regarded as incomplete types or as atavistic remnants which in time will disappear.

PETROV (Z)

Cross W W The Fluoroscope as an Aid to Making Pyelograms *J Urol* 1916 xvi 37

The author has used the fluoroscope in making pyelograms in about 200 cases. Under fluoroscopic control there is less danger of overdistending the kidney pelvis, the mobility of the kidney is easily ascertained, the change from normal action is observed, and stones that are not suspected can be seen by turning the patient as the filling progresses. Training in X ray work is essential for this type of examination.

Pain during pyelography may be due to the position of the catheter. If the tip of the catheter is in a calyx, pain may be produced by even a small amount of fluid. It can be relieved by pulling the catheter down into the pelvis. When the catheter is below the kidney pelvis pain is more apt to result than when it is higher up in the pelvis. As a rule the severity of the pain is in inverse proportion to the diseased condition of the kidney. Undoubtedly some patients are especially susceptible to pain shock and reaction.

MAURICE MILTZER M D

Mucharskij M A Subcutaneous Injuries of the Kidney. *Experimental Investigations* (Über die subcutanen Nierenverletzungen experimentelle Untersuchungen) *Verhandl d 16 russ Chir Kong* Moscow 1925 p 69

In experiments on rabbits the author produced a subcutaneous injury of one kidney by crushing the

organ with his fingers. After the injury the animals were kept under observation for about seven months. The hæmaturia, the quantity of urine, and the hæmatoma in the lumbar region were watched from day to day, roentgenograms were made, and both the intact and the injured kidney were finally examined microscopically.

In the injured organ there were degenerative changes which in some cases had progressed to complete atrophy of the organ and the deposit of calcium. Investigators (Maas, Tuffier) who are rather optimistic regarding the fate of traumatized kidneys and advise conservative treatment, do not realize the significance of these changes.

In 50 per cent of the animals the author was able to demonstrate also changes in the uninjured kidney, beginning the third week. First there was a hyperæmia, then a thickening of the membrana propria of the tubules in the papilla, then involvement of the tubules of the medulla and the cortex, and finally interstitial proliferation of connective tissue with compression of the tubules. The author draws the following conclusions:

Subcutaneous injuries of the kidney cause a slow degenerative process which may lead to complete atrophy and calcification of the organ. As a result, adhesions may form to near by structures—the intestines, spleen, omentum, etc.—and these organs may become involved by the pathological process. In many cases stricture of the ureter and hydro-nephrosis may develop.

In the uninjured kidney there occurs a slowly developing interstitial change. The extent of the injury cannot be judged with certainty from the severity of the hæmaturia, the retroperitoneal hæmatoma, the pain or the quantity of urine. Only early exposure of the kidney can give definite information. Conservative measures seem advisable only in relatively slight injuries. In more serious injuries the extirpation of the injured kidney is to be considered as the other kidney may be seriously injured by its presence.

PETROV (Z)

LeComte R M Spontaneous Rupture of Hydro-nephrosis *J Urol* 1926 xv, 517

The author reports the case of a man 25 years of age who entered the hospital with a history of acute renal colic on the right side and profuse hæmaturia followed by the formation of a tumor in the region of the right kidney. Exploration disclosed free blood and clots around the right kidney, a long tear in its anterior surface, and marked hydronephrosis. The author believes that a vessel broke into the hydro-nephrotic sac, and that the sac was eventually ruptured by the pressure of the clots which could not be evacuated.

H L SINFORD M D

Carson W J and Goldstein A E Experimental Nephrotomies III Nephrotomy Without Sutures in Dogs with Single Kidneys *J Urol* 1926 xvi 509

The technique in the experimental work reported in this article consisted in incising the kidney in its midline along its longitudinal axis down to the pelvis quickly sponging the bleeding surfaces and then approximating the cut surfaces and holding them together by light pressure with the fingers until all bleeding ceased. After the bleeding had stopped the kidney was observed for from fifteen to twenty minutes. Following their recovery from the operation, the animals were killed after varying periods of time for gross and microscopic study of the kidneys.

Of fifteen dogs thirteen were operated upon twice, one was subjected to three operations and one was subjected to four. All of them recovered from all operations. In dogs with two kidneys the bleeding time varied between four and eight and a half minutes while in those with single kidneys it varied from five to fifteen minutes and averaged about eight minutes.

Following the nephrotomy on the dogs with a single kidney macroscopic blood was observed in the urine for from two to five days. There were no post operative complications such as hemorrhage, uræmia, infection, fistulae or infarction. In two dogs calculi were found in the pelvis after the operation. In dogs that were sacrificed within forty days after the nephrotomy on the single kidney, no definite change in the size of the organ was noted while in those sacrificed after forty days the kidney was somewhat smaller. The destruction of kidney tissue was minimal. The authors conclude that the function of these kidneys was reduced to a less degree than if sutures had been used. H I SANFORD MD

### GENITAL ORGANS

Belfield W T and Rolnick H C Roentgenography and Therapy with Iodized Oils *J Am M* 1926 lxxvii 1231

The authors state that the usefulness of lipiodol and iodipin is restricted because these preparations are non absorbable and may cause irritation and cicatrix formation. They found therapeutic efficiency with harmlessness in iodol 10 gm in 40 c cm of cod liver oil (18 per cent of iodine by weight) and in thymol iodide 10 gm in 30 c cm of cod liver oil (12 per cent of iodine by weight). The use of these fluids is suggested for the examination of the seminal vesicles. Either of them will clear the vesicles of gonococci and other pyogenic cocci.

In discussing industrial hernia the authors call attention to Bogros space which is formed by the loose connective tissue at the internal inguinal ring where the sheaths of the scrotal and intrapelvic vas meet and where infections cause swellings that simulate hernia. Such swellings may be cured by treatment of the infected vesicles.

BENJAMIN F ROLLER MD

### MISCELLANEOUS

McKay H W The Application of Modern Urological Diagnostic Methods in Pediatrics Case Reports *South M J* 1926 xiv 460

McKay calls attention to the fact that children are subject to the same genito urinary conditions as adults and should have the same careful urological examinations. Such examinations are indicated in cases of pyuria, enuresis, over distention of the bladder, abdominal tumor and hamaturia. Small instruments are now made for the cystoscopic examination of children but in boys a meatotomy may be necessary. In cases of pyuria, cystography is important. It can be done without anesthesia. Litholapaxy has frequently been performed successfully in children. In the treatment of persistent pyelitis, pelvic lavage should have a definite place.

Several interesting cases are reported. In the case of a girl 8 years of age who had had dribbling of urine since birth, examination revealed an anomalous ureter extending from the bladder to the urethral meatus near Skene's duct. The conditions in the other cases reported were dilatation, kinking and stone of the ureter, tumors, malignancy and colon bacillus pyelitis. BENJAMIN F ROLLER MD

Briggs W T and Maxwell E S Leucoplakia of the Urinary Tract with Reports of One Vesical and Two Renal Cases *J Urol* 1926 xvi 1

Leucoplakia is a rare condition but is probably not as rare as is suggested by the comparatively small number of cases reported to date. If the urinary tract is considered as a whole it occurs oftener in men than in women but in the kidney its incidence is about the same in both sexes. The renal pelvis is probably affected oftener than the bladder since there is little difference in the number of renal and bladder cases reported in spite of the fact that vesical leucoplakia can be diagnosed by cystoscopy alone whereas in renal leucoplakia the diagnosis can be made only at operation or autopsy. The condition may occur at any age but the average age at the time of diagnosis in the eighty cases reviewed by the authors was 41 years. The renal pelvis was involved earlier than the bladder.

No constant bacteriological findings have been reported and in four of the cases reviewed cultures of the urine were reported negative.

The cause is unknown. Irritation from infection or stone or both is often present. However in several of the cases reported no bacteria were discovered and in many there were no stones. Desquamated cornified epithelium may act as a nucleus for stone especially if infection is present.

There are no pathognomonic symptoms but the passage of pieces of membrane should always suggest the condition.

In the treatment of leucoplakia of the bladder reliance must be placed on resection, electrodesiccation or radium irradiation as the condition does not respond to irrigations and instillations.

The authors report the following three cases

**CASE 1, vesical leucoplakia** The patient was a woman 35 years of age who first consulted the authors in 1918 because of intermittent pain in the left renal area which had been present since the birth of a child six months previously. Pelvic nephrotomy was followed by relief for about eight months, but at the end of that time the pain recurred and was more severe than before. The patient was then found to have a pyonephrosis on the left side. In a period of fifteen minutes there was no output of dye on the left side and 1.40 per cent output on the right side.

In November, 1920, the left kidney was removed. The patient then had a vesical infection which treatment failed to relieve, but there were no symptoms of cystitis. Cystoscopic examination in August 1921, revealed a few leucoplakic spots on the trigone. A specimen of urine from the right kidney showed no pus or bacteria. In March, 1925, a mild cystitis developed, and in July, 1925, there was hæmaturia. Cystoscopic examination in July showed two leucoplakic spots in the trigone and a very red sessile tumor mass suggesting malignancy. Radium treatment was given. Four months later the tumor mass was still present but was less prominent. One of the leucoplakic spots had disappeared and near the other there was some shreddy material suggesting leucoplakic material being thrown off.

**CASE 2, renal leucoplakia** This was the case of a woman 37 years old who was treated seven years ago for cystitis but had had no bladder symptoms since then. She entered the hospital again in June 1922, with renal colic on the left side. The patient was well developed and physical examination revealed nothing abnormal except a rather dark skin. The urine showed a trace of albumin, numerous pus cells, an occasional red cell and many bacteria but no tubercle bacilli.

Roentgenograms of the urinary tract were negative. On cystoscopic examination the bladder mucosa was found to be inflamed. The urine from the right kidney showed albumin, a few pus cells and a phthalein output of 25 per cent in the first twenty five minutes. The specimen from the left

kidney showed albumin, numerous pus cells a dye output of 12½ per cent in twenty five minutes and, on culture, a moderate growth of streptococcus hemolyticus. Pyelograms revealed inflammatory dilatation on the right side and early hydronephrosis on the left side. Up to the time of her death ten months later the patient was treated with pelvic lavages and urinary antiseptics. At autopsy the left kidney was found larger than normal. The pelvis, which was distended and fluctuant was almost entirely lined by a pearly white glistening membrane.

**CASE 3 renal leucoplakia** The patient was a para iv whose youngest child was born five years ago. Her present illness began four weeks ago with pain in the right lower quadrant of the abdomen. For three weeks, sweating had occurred every two hours day and night, and there had been moderate dysuria and tenesmus with considerable pyuria but no hæmaturia. Investigation revealed that the patient had been having similar attacks of pain for the past thirteen years. The attacks were always accompanied by nausea and vomiting and came on suddenly. Seven years ago the removal of the right kidney had been advised.

On physical examination the patient was found to be undernourished and to have pyorrhœa. The right kidney was enlarged and there was tenderness in the region of that organ. The right ureter was felt as a thickened tender cord. The urine which was acid turbid and foul smelling, showed a moderate amount of albumin, a moderate number of red cells, and a large number of pus cells. Cystoscopy revealed inflammation of the bladder mucosa and thick pus coming from the right ureter. A diagnosis of pyonephrosis was made, and the right kidney removed.

Section of the kidney showed the calices draining numerous abscesses which had destroyed most of the cortical tissue. The lining of the pelvis was a pearly white wrinkled membrane which covered the walls of some of the distended calices and lined the ureter for a distance of about 1 cm. The pathological diagnosis was pyonephrosis and leucoplakia of the kidney pelvis.

CLAUDE D. HOLMES M.D.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

**Tavernier** A Form of Bony Lesion Intermediate Between Myeloplaxomata and Bony Cysts (Une forme de lésion osseuse intermédiaire entre les tumeurs à myéloplaxes et les kystes des os) *Bull et mém Soc nat de chir* 1926 lu 17

Tavernier discusses a bone condition regarding which there is considerable argument namely the hæmorrhagic osteomyelitis of Barrie. He describes the microscopic findings in this condition and reports three cases he operated upon.

The application of the term hæmorrhagic osteomyelitis to this condition he believes is incorrect. Preferable is the term bony cysts with hæmorrhagic contents suggested by Nakayama. The cysts are usually benign. Tavernier argues against amputation believing the treatment of choice to be bone grafting and closure of the cavity without drainage and calls attention to the danger of infection when fat muscle or osteoperiosteal grafts are used to plug the cavities. **PALL C. COLONNA M.D.**

**Sorrel E.** Localized Tuberculous Arthritis of the Wrist in Children (Des arthrites tuberculeuses localisées du poigne chez l'enfant) *Bull et mém Soc nat de chir* 1926 lu 86

Recently l Heureux described a carpus with only one row of bones in an adult. From the roentgen picture and the fact that the wrist was freely movable he concluded that the cause could not have been tuberculosis in childhood. He therefore attributed the condition to traumatism.

Sorrel reports the case of a child 9½ years of age whom he recently treated for tuberculosis of the wrist. The wrist suppurated and a fistula developed but following recovery the wrist was freely movable and the roentgen picture was very similar to that in the case seen by l Heureux. In the roentgenogram the second row of carpal bones seems to be fused with the bases of the metacarpals.

It has often been said that in tuberculosis of the wrist the mobility of the joint can be preserved only when the infection is mild. Sorrel maintains that the preservation of motion depends not upon the mildness of the infection but its localization. If the radiocarpal joint is involved ankylosis occurs but if the radiocarpal joint is not involved preservation of motion is possible however severe the lesion. In proof of this contention Sorrel includes in his article roentgenograms and photographs of six other cases of severe tuberculosis with suppuration and fistula formation involving only the carpometacarpal or the mediocarpal joints in all of which there was ultimately free movement of the joint.

These localized forms of tuberculosis of the wrist are frequent in children because until they are completely ossified the small bones of the carpus have a cartilaginous sheath which separates them from each other and prevents the extension of a tuberculous process. After complete ossification these localized forms no longer occur. This fact is not sufficiently emphasized in the literature and as a result many surgeons advise resection in severe tuberculosis of the wrist in children when it is not necessary. **AUDREY G. MORGAN M.D.**

**Jorge J. M.** Congenital Contracture of the Palm (Retraction palmaire congénitale) *Rev d'orthop* 1926 xxxiii 97

Jorge describes a congenital contracture of the hand in a 3 year-old girl whose mother had a similar contracture which had been present since her birth. There was no history of such a condition in any other members of the mother's family. As the Wassermann reaction was positive in both the mother and the daughter the author concludes that the cause of the contracture was connective tissue hyperplasia due to syphilis.

The deformity in the child's hands was first noticed by the parents when the child was a month old but the author believes it must have been present at birth. The palm is more concave than normal and the first metacarpal bone projects forward and inward thus exaggerating the thenar eminence. The fingers are in permanent partial flexion but as the metacarpophalangeal joint is extended the curvature is caused by the flexures of the interphalangeal joints. The thumb is semiflexed. All movements are preserved but with the exception of the thumb which can be extended to a right angle the fingers cannot be straightened out completely. When the fingers are passively stretched it is possible to feel the traction which the skin and the palmar fascia exert on the base of the fingers. In the anteroposterior roentgenogram irregularities in the centers of ossification of the heads of the metacarpals are seen. In the lateral view the heads of the proximal phalanges show some volar bowing. Slight volar bowing is seen also in the middle phalanx.

The mother's deformity is like the child's though more advanced. When the mother was 10 years old an operation was advised but was not permitted by her parents. The right hand presents a varus deformity forming an angle of 130 degrees with the forearm. Wrist flexion is normal but extension is impossible beyond 130 degrees. Extension exaggerates the varus. Pronation is perfect and supination incomplete. Lateral movements are imperfect especially to the radial side. The palm is flattened as the result of thenar and hypothenar atrophy.

The skin folds are still preserved. The thumb is rotated inward and flexed to 140 degrees. Neither extension nor abduction of the thumb is complete. When they are attempted a cutaneous aponeurotic bridge is formed, extending from the base of the digit to the upper and medial part of the palm and hampering movement. In the fingers the metacarpophalangeal joints are extended, while the interphalangeal joints are permanently flexed to about 100 degrees. When the fingers are extended there is a palmar bridge which extends from the proximal phalanx to the base of the terminal phalanx.

The left hand is about the same as the right except that it is in a slight valgus position. The anteroposterior diameter of the fingers is increased by the cutaneous aponeurotic band. In the X-ray plates the heads of the proximal phalanges are seen to be curved forward to form an angle of from 100 to 130 degrees with the body of the bone. On the posterior aspect of the joint there is a small outgrowth which interferes with extension. The middle phalanx is also curved forward but to a less degree. The terminal phalanx shows a very slightly elongated S curve.

This deformity is easily distinguished from Volkmann's contracture. It resembles in its pathology Dupuytren's contracture but the two conditions are not the same. In Dupuytren's contracture the metacarpophalangeal joint is flexed and the fingers may pierce into the palm, the condition is usually unilateral, begins in the ring or little finger, and may affect the middle and index fingers not at all or only very slightly. Though a hereditary influence is present in Dupuytren's contracture, in most of the cases the contraction begins in later years.

With regard to the treatment in the cases he reports, the author states that in his opinion anti-syphilis agents and local measures will correct the deformity in the child, but in the case of the mother operative measures would be necessary.

M L Mason M D

Mayer M and Testu C. Alternating Scoliosis (Scoliose alternante) *Bull et mém Soc med des hôp de Par* 1926 July 24

The case reported in this article was that of a man 28 years of age who, for eight months, had had continuous spontaneous pain in the lumbar and sacro iliac region on the left side. The pain radiated to the buttock but not to the leg and was increased by fatigue and standing. Examination revealed a marked scoliosis of the lumbar region which was convex to the left and bent the trunk toward the right the direction away from the painful area. The condition was therefore a crossed scoliosis. There was no disturbance of the reflexes, amyotrophy, disturbance of sensation, or point at which pressure caused pain. The scoliosis was more marked than that ordinarily found in sciatica.

Attempts made by the authors to reverse it were unsuccessful, but the patient was able to reverse it by making an abrupt leap with his hands supported

on the back of a chair or with more difficulty, without any support. On this movement the scoliosis changed immediately from right to left or from left to right. The movement suggested the release of a spring in the lower lumbar region. Ordinarily and during repose the scoliosis was crossed, but the patient could transform it at will to a homologous scoliosis. The movement was painful but as soon as it was completed the pain stopped. There was no muscle contraction, the movement was purely mechanical.

A roentgenogram taken with a Potter Bucky diaphragm showed flattening of the third and fourth lumbar vertebrae on the right side, the two vertebrae forming a wedge which slipped in and out of its mortise. The reversal of the scoliosis from one side to the other was produced by the slipping of the wedge in or out. There were no bone proliferations or bony processes. The authors are unable to state whether the flattening of the vertebrae was due to arthritis.

AUDREY G MORGAN M D

## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Sorrel E. The Repair of Bony Cavities in Children (De la réparation des cavités osseuses après évidement chez l'enfant) *Bull et mém Soc nat de chir*, 1906 July 360

Many surgeons employ bone or osteoperiosteal grafts to fill bone cavities when the latter are believed to be aseptic and can be closed by suture without drainage. In the absence of fistula and secondary infection, Sorrel merely sutures over the cavity and does nothing else. This treatment has never failed to be followed by bony repair without complications.

Sorrel reports the case of a 17 year-old girl with osteitis and sequestration of the lower end of the radius. The sequestrum was removed and the cavity then cleaned and closed without drainage. Primary union resulted and after eighteen months the replacement of the bone was complete.

In a case of spina ventosa of the first phalanx of the middle finger in a girl 10½ years old the removal of a large central sequestrum was followed by complete repair.

The same technique gave a good result also in two cases of osseous tuberculosis in the lower end of the femur. After two years the cavity was completely filled.

In the cases of adults the author has removed at least 100 bony transplants, some of which included the entire thickness of the bone. They ranged from 10 to 14 cm in length to 1½ to 2 cm in width. Most of them were used in the treatment of Pott's disease. All were removed with the electric saw. The cavity formed by their removal always filled easily and the bone seemed to take on its original form.

In the discussion of this report, Bazin said that repair does not always occur in this manner in adults.

During the war he frequently removed foreign bodies from the upper end of the tibia cleaned out the cavity closed it and obtained primary union. Then probably because the patient walked too soon the upper surface of the tibia became deformed and genu valgum or varum developed the newly formed bone being weak. Bazy believes that if a bone graft were implanted in the cavity in such cases such complications would be prevented.

MOLCHER stated that the same treatment cannot be applied to cavities due to bone cyst and those due to tuberculosis. For the former he uses osteoplastic grafts. For the latter he uses osteoplastic grafts.

F. ELLOGG SPEED M.D.

## FRACTURES AND DISLOCATIONS

Plisson and Rouvillois Total External Luxation of the Elbow (Luxation externe totale du coude)  
*Bull et mém Soc nat de chir* 1926 li 1108

Rouvillois reports a case which was called to his attention by Plisson. The patient suffered a lateral luxation at the elbow of both bones of the forearm from a fall on the outstretched hand. As several attempts to maintain the reduction by plaster were unsuccessful elastic traction was employed. The end result was most satisfactory.

Plisson believes that lateral luxation is always preceded by backward dislocation. He advocates

the more general use of elastic traction in the reduction of dislocations.

PAUL C. COLONNA M.D.

Courty and Algave The Treatment of Imperfectly Consolidated Bimalleolar Fractures (Au sujet du traitement des fractures bimalléolaires vicieusement consolidées) *Bull et mém Soc nat de chir* 1926 li 1119

Algave reports a case of Dupuytren's fracture treated by Courty in which the original deformity was still present when the dressings were removed after immobilization for thirty days. Three months after the accident an astragalectomy was performed with very satisfactory results. Astragalectomy gave a good result also in two cases of bimalleolar fracture treated by Algave. In a third case Algave obtained a satisfactory result from a modeling operation on the ankle joint.

In Algave's opinion it is almost impossible to maintain the reduction of bimalleolar fractures by means of plaster if there has been much displacement. Duval came to the same conclusion from roentgen ray studies made during and after reduction. Algave therefore employs open reduction with screwing. He describes two types of osteotomy, one above the site of fracture and the other through the fracture. He prefers the latter.

PAUL C. COLONNA M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

**Bomasch I** The Innervation of the Blood Vessels of the Lower Extremity (Die Innervation der Blutgefäße der unteren Extremität) *Chir Sam melh d propädeut chir Klin u d Inst f Krebsforsch 1 Moskauer Startunn 1935 p 17*

The author attempted to determine (1) the effect of the local tonus upon the caliber of the blood vessels and its dependence upon the higher voluntary and autonomic centers (2) the relationship between the two systems and (3) the conduction path of the central impulses to the periphery

The studies were made on cadavers which had been injected with 3 to 5 per cent nitric or acetic acid and then treated with water By this procedure the nerves were rendered very distinct

On the basis of his experiments and a review of the literature the author concludes that the peripheral vessels possess a tonus of their own which is independent of the central nervous system He was able to determine a constrictor function only for the anterior roots and the sympathetic lumbar ganglia, but never for the peripheral spinal nerves which send no constrictors to the peripheral vessels The dilators on the other hand, may be assumed to course in the peripheral nerves These are identical with the sensory nerves of the vessels and possess reflex functions The rami vasorum are sensory nerves and dilators Arteries and veins are innervated in an identical manner **REINBERG (Z)**

**Grigorjew A M** The Cure of a Gigantic Traumatic Arteriovenous Aneurism of the Abdominal Aorta and the Inferior Vena Cava by the Moore Corradi Method (Ueber die Heilung eines riesigen traumatischen arteriovenösen Aneurysma der Aorta abdominalis et V. cava inferior nach der Methode von Moore Corradi) *No 13 chir arch 1925 viii 83*

In the case of a 40 year old alcohol addict who attempted suicide by shooting himself in the abdomen there developed, three weeks after the injury, a gigantic aneurism of the abdominal aorta and inferior vena cava which at exploratory laparotomy appeared to be inoperable The introduction of a spiral bronze aluminum wire into the sac was followed by gradual diminution in the size of the aneurism and improvement in the general condition of the patient

Later, the patient was re admitted to the hospital because of loss of strength and a tumor in the epigastrium At a second laparotomy the aneurysmal sac which was found collapsed was split open and the spiral wire, which was surrounded by soft tissue, was withdrawn Complete recovery fol-

lowed The patient has now been working at his occupation of locksmith for about a year and feels entirely well **ALPLOW (Z)**

**Chauvin Esmenard and Jaur** The Part Played by the Coagulability of the Blood in the Development of Postoperative Phlebitis (Recherches sur le rôle de la coagulabilité sanguine dans la production des phlébites postopératoires) *Gynéc et obst 1926 viii 123*

The authors discuss the theory that postoperative phlebitis may be due to an effect upon the coagulability of the blood produced by the operation or the anæsthetic

The coagulation time of a series of normal subjects was found to be very uniform ranging from ten and one half to eleven minutes A study of a series of patients before and after operation showed that the influence of the operation on the coagulation of the blood was very slight and bore no relation to the type of operation or the type of anæsthesia

In eight patients developing phlebitis, a slight decrease in the coagulation time averaging a minute and a quarter was found, but this variation was no greater than that observed in many patients with a normal postoperative convalescence

The authors conclude that if the coagulation time of the blood is a factor in the development of phlebitis it is only a minor one In the literature, similar opinions have been expressed with regard to puerperal phlebitis **ALBERT F DEGROAT MD**

**Tolstikoff D F** Changes in the Blood Pressure Under the Influence of Operations (Veränderung des Blutdruckes unter dem Einfluss von operativen Eingriffen) *Verhandl d 16 russ Chir Kongr, Moscow 1925 p 139*

The author made about 2000 determinations of the blood pressure in 100 patients In the majority they were made several times before operation and during a period of from eight to ten days after it In twenty cases they were made also during anæsthesia and operation The Riva Rocci apparatus and the Korotkoff method were used

In 75 per cent of the cases the blood pressure was increased before operation by the psychic excitement The increase was especially marked just before the operation At the beginning of the anæsthesia the pressure was still high, but then gradually sank with the depth of the narcosis, even reaching subnormal values

After operations performed under general anæsthesia the pressure was elevated in 75 per cent of the cases and returned to normal gradually only after from two to ten days In 21 per cent of the cases no noteworthy changes occurred, and in 4 per cent



there was a marked fall due to the gravity of the operation and the loss of blood.

In cases in which local anesthesia was used the blood pressure remained high during the operation and showed no great variations during the post operative period.

KORNMAN (Z)

**Brown G E Treatment of Peripheral Vascular Disturbances of the Extremities** *J Am M*  
133 1926 LXXXVII 379

There are two main types of vascular disturbances affecting the extremities which are classifiable on the basis of their functional or organic origin. The functional or vasomotor disturbances fall in two clinical groups as the vasomotor mechanism is capable of only two responses vasoconstriction and vasodilatation. When the vasomotor balance of the limb is preponderantly toward the vasoconstrictor side and the blood flow is diminished the surface temperature is reduced and the limb is frequently pale or cyanotic. The degree of coldness and of pallor or cyanosis of the extremity depends upon the amount or degree of vasoconstriction.

When vasoconstriction occurs in attacks in the hands or feet with well defined local color changes subjective symptoms and frequently trophic disturbances the condition is recognized as Raynaud's disease. Milder vasospastic disturbances are designated as dead finger or white finger, acrocyanosis or acro asphyxia. The condition characterized by intermittent attacks of undue vasodilatation of a peripheral vascular segment with redness and subjective symptoms of heat is known as erythromelalgia. There are probably two types of erythromelalgia, a primary or essential form existing in the absence of any demonstrable organic vascular disease and a secondary form appearing in association with arteriosclerosis. In the latter the objective evidence of increased vasodilatation may be lacking, but the patient notes intermittent attacks of a burning sensation in the extremities. The symptoms suggest paresthesia more than a disturbance in the blood flow.

The organic or obliterative lesions involving the extremities are mainly of two types thromboangitis obliterans or Buerger's disease and endarteritis obliterans or arteriosclerosis with or without superimposed thrombosis. The so called diabetic gangrene has a similar arteriosclerotic basis. Thromboangitis obliterans is a chronic thrombosing process usually involving the peripheral arteries and veins. The early pathological picture shows a soft red clot filling the vascular lumen and containing erythrocytes and fibrin. There are subsequent stages of fibroblastic organization and canalization. Aside from a diffuse cellular infiltration of the arterial coats suggesting an infectious basis there is no evidence of any of the changes involving the intima or media that characterize endarteritis obliterans. Buerger was the first to point out this essential difference in the two diseases. In arteriosclerosis of the peripheral vessels the lumen is gradually nar-

rowed by the proliferation of the intima. Degeneration of the muscle fibers and the deposition of calcium are the usual sequence of events. The superimposition of a simple thrombus usually precedes the advent of gangrene. The cellular nature of the clot so characteristic of that observed in thromboangitis obliterans is lacking. The process is degenerative and lacks the evidence of an infectious basis which is seen in thromboangitis obliterans.

Medical treatment of Raynaud's disease and allied vasospastic disturbances has not been successful and theoretical considerations would indicate a surgical procedure to produce interference with the vasomotor paths to the extremities. Perivascular stripping is not followed by a demonstrable increase in the blood flow of the extremity but removal of the second, third and fourth lumbar sympathetic ganglia and perivascular neurectomy of the common iliac arteries produces this effect in the lower extremities. It is probable that a permanent vascular dilatation in the feet ensues, with disappearance of the vasoconstricting action. The blood flow is markedly increased as shown by quantitative studies of the loss of heat and the surface temperature. Trophic ulcers heal rapidly and the signs and symptoms of the disease disappear completely.

The treatment of the chronic organic obliterative diseases of the extremities presents another type of problem. In these cases medical supervision and therapy are of great value. In thromboangitis obliterans the relief of pain is frequently the paramount consideration. In many cases the pains can be relieved for variable periods by the intravenous injection of foreign protein or of radium chloride and irradiation of the sacral spine with the roentgen rays. When definite gangrene is absent and when relief from pain is attainable these patients can be tended over long periods with some hope of the establishment of circulatory compensation. Conservative measures to avoid amputation are necessary as the disease is bilateral and double amputation means economic disaster for the patient. Early diagnosis is essential. Unfortunately this disease is not well recognized by physicians generally. Fewer than 20 per cent of the cases reviewed by the author were correctly diagnosed before investigation at the Clinic. In most of them valuable time was lost during the period when protective and simple physical measures might have prevented the serious sequelae.

When these patients show beginning trophic disturbances and suffer the usual distressing pain the operation performed by Adson seems to offer additional chance of preventing the loss of limbs. When the pain is controlled amputation may be delayed indefinitely. With the institution of protective and other measures to increase the circulation in the feet these patients can acquire a moderate degree of usefulness and activity. The permanence of the vasodilating effects of operation cannot be stated at this time. Brown is of the opinion that if amputation is eventually necessary after lumbar ganglionectomy

it will be possible to perform it at a lower level on account of the additional vasodilatation

A proper selection of the cases for operation is most essential, and the use of the protein reaction to determine available vasodilatation seems advisable as a pre-operative test. Comparison of the pre-operative rise in the surface temperature to protein fever with the postoperative values seems to indicate a fairly close parallelism. It would be futile to attempt the radical operative procedure in the absence of any available dilating vessels. Patients with endarteritis obliterans show slight or no vasodilatation, and the age and general condition of these older patients, who frequently have generalized degenerative lesions of the heart or kidney, contra-indicate an operative procedure of this magnitude.

### BLOOD, TRANSFUSION

Odinov, D. E. Changes in the Viscosity of the Blood Under the Influence of Anesthesia and Operation (Ueber Veränderung der Blutviskosität unter dem Einfluss der Anaesthetie und Operation) *Verhandl. d. 16 russ. Chir. Kong.* Moscov. 1913 p. 128.

One thousand examinations made in the cases of seventy-one patients showed that even preparation for operation caused a more or less marked increase in the viscosity of the blood. Operative trauma and both local and general anesthesia caused an increase in three-fourths of the cases. In one series this effect was noted after from thirty to ninety minutes and in another series toward the end of the first day. After from six to eight days the viscosity returned to normal. In most of the cases with postoperative complications the viscosity of the blood was markedly increased, even before the clinical symptoms of the complication became evident.

KORNMAN (Z)

Visner, E. J. The Effect of Operation upon the Changes in the Coagulability of the Blood (Ueber die Einfluss der Operation auf die Veränderungen der Blutgerinnungsfähigkeit) *Verhandl. d. 16 russ. Chir. Kong.* Moscov. 1913 p. 136.

The author made 1,200 determinations of the coagulability of the blood of eighty-eight patients operated upon. In thirty-two cases the coagulation time remained within the normal limits both before and after operation. In such cases the postoperative period was normal, complications occurring in only 9.9 per cent.

In twenty-three cases the coagulability was normal before the operation but was decreased after the operation and in eight (34 per cent) of these cases the postoperative period was not smooth.

Still greater was the incidence of postoperative complications—54 per cent—in thirty-three cases in which the coagulability was decreased before the operation and remained decreased afterward. In this group of cases there were two deaths.

In 67 per cent of the cases the operation (pre-operative preparation, operative trauma, and narcosis) decreased the coagulability. On the other hand decreased coagulability indicated early the development of complications such as pneumonia and hæmatoma. After the appearance of such complications, the coagulability may again return to normal.

In 60 per cent of the cases an increase in the viscosity of the blood was found in association with a decrease in the coagulability and vice versa. In 64 per cent a simultaneous decrease in the number of blood platelets was found with a decrease in the coagulability. In 75 per cent a direct relationship could be established between the calcium content of the blood and its coagulability. KORNMAN (Z)

Sashin, P. G. The Effect of Operation and Narcosis on the Calcium Content of the Blood (Der Einfluss von Operation und Narkose auf den Calciumgehalt des Blutes) *Verhandl. d. 16 russ. Chir. Kong.* Moscov. 1913 p. 160.

The author made determinations of the blood calcium on fifty patients at various times before and after operation and on fourteen dogs. The Kjeldahl method was used. It was found that narcosis and the loss of blood during operation had no effect.

The calcium content of the blood was lowered in severe ailments in which the general condition was poor, such as echinococcosis, cholecystitis, and carcinoma of the breast. After the transplantation of testicles it showed a definite increase, and after the transplantation of ovary or thymus a decrease. In 75 per cent of the cases the changes in the blood calcium were parallel with the changes in the coagulability of the blood.

KORNMAN (Z)

Melikow, P. G. The Change in the Catalase Index of the Blood Under the Influence of Surgical Operations (Die Veränderung des Katalaseindex des Blutes unter dem Einfluss chirurgischer Operationen) *Verhandl. d. 16 russ. Chir. Kong.* Moscov. 1913 p. 139.

The author determined the catalase index of the blood in eighty-three patients, fifty-six of whom were operated upon under general anesthesia and twenty-seven of whom were operated upon under local anesthesia. The determinations were made by the Bach method with which, according to Bach, the normal average index for man is between 14 and 18.

On their entrance to the hospital the patients showed an average index of 16.8. After general anesthesia and operation the index in 90 per cent of the cases showed a fall of from 10 to 22 per cent. After operations under local anesthesia, no change was noted.

During the postoperative period cases with a smooth course showed a fall in the index of 16 per cent on the second or third day, but after the sixth to the tenth day the pre-operative value was again reached. In cases with suppurations and hemorrhages during the postoperative period the index

showed a decrease of from 25 to 40 per cent. Especially low figures were found in the cases of icteric patients and those who were cachectic from cancer.

The transplantation of sex glands was followed by an increase in the index of about 15 per cent on the tenth day after the transplantation in 80 per cent of the cases but transplantation of the thyroid and thyroid operations were followed by a fall of from 25 to 20 per cent. KORNMAN (Z)

**Report P. L. The Changes in the Number of Leucocytes and the Leucocyte Formula During the Postoperative Period** (Die Veränderungen der Leukocytose und der Leukocytenformel in der postoperativen Periode) *Verhandl d 16 russ Chir Kong Mos* 1925 p 150

The author studied the leucocytes by the Schilling method in the cases of ninety patients. Every patient was examined six times—immediately before and after operation and on the second, third, fourth and sixth days after operation. The cases included twenty-four of hernia and chronic appendicitis, ten of cholecystitis, fourteen of malignant tumors and eight of purulent infection. Local anesthesia was used in twenty-three cases, spinal anesthesia in five and general anesthesia in sixty-two.

In all cases there were changes in the absolute and relative numbers of the leucocytes and the more extensive the operation and the longer the duration of the anesthesia the more definite and persistent these changes. After all operations there was a leucocytosis with an increase in the number of neutrophils, a decrease in the number of lymphocytes and disappearance of the eosinophiles. The leucocytosis was especially marked after general anesthesia, the number of leucocytes reaching as high as 35,000 per cubic millimeter in some cases, although in the majority it was between 18,000 and 19,000. After the use of ether the leucocytosis was somewhat higher but less persistent than after the use of chloroform. During the first few days after the operation the count gradually decreased and by the tenth day had reached normal.

After local anesthesia the leucocytosis was high for only two days and on the third day rapidly decreased. After lumbar anesthesia induced with a 5 per cent solution of novocain a leucopenia was noted. The author believes that novocain introduced into the spine has a depressing effect upon the centers regulating the formation of leucocytes.

In the basophil leucocytes no changes were noted. The eosinophile leucocytes disappeared in all cases immediately after the operation, even in cases with a definite eosinophilia. As a rule they were not demonstrated again before the sixth day after operation. Their re-appearance in the normal proportions (2 per cent) is to be regarded as a good sign of convalescence.

The most marked changes after operation were shown by the neutrophile leucocytes, especially the younger forms. The appearance of myelocytes and an increase in the number of rod-shaped neutrophile

leucocytes indicate the presence of complications. A progressive increase in the number of rod-shaped neutrophile leucocytes is particularly ominous. The number of lymphocytes was low as compared with the other cells but the actual number showed a slight decrease only on the second and third day after the operation.

Particularly poor blood pictures were found after exploratory laparotomies for malignant tumors. In these cases the resistance of the erythrocytes was also decreased. In the majority of cases the leucocytosis was parallel with the increase in the viscosity of the blood and in inverse relation to the number of blood platelets. KORNMAN (Z)

**Skokoloff W. I. and Gladyshevsky N. L. The Changes in the Number of the Erythrocytes and Blood Platelets During the Postoperative Period** (Die Veränderungen in der Zahl der Erythrocyten und Blutplättchen in der postoperativen Periode) *Verhandl d 16 russ Chir Kong Mos* 1925 p 155

The authors' determinations of the number of erythrocytes and blood platelets during the postoperative period were made on eighty-eight patients and four anesthetized dogs. No change in the number of erythrocytes was found.

The blood platelets were counted by the method of Fomicoff according to which the normal number is 234,000 per cubic millimeter. After operation under spinal anesthesia in two cases and under local anesthesia in twenty-six, no typical changes were demonstrable. In forty-three (72 per cent) of sixty cases the number was somewhat diminished during the first few hours after the anesthesia, very markedly diminished on the second and third days, somewhat increased on the sixth day and again normal on the tenth day. In seventeen cases (28 per cent) the blood platelet count was not made.

The fluctuations in the number of the blood platelets in the majority of the cases examined are attributed by the authors to the anesthesia.

A study was made also of the relationship between the number of blood platelets and the coagulation time of the blood. It was found that a normal number of blood platelets corresponded to normal coagulation and a diminished number of platelets to decreased coagulation. KORNMAN (Z)

**Gabriel W. B. A Simplified Technique for Blood Transfusion by the Kimpton Brown Method** *Lancet* 1926 cct 1255

Whole blood transfusion by the Kimpton Brown method is still the procedure of choice when it is possible to bring the donor and patient together. A disadvantage in the use of the Kimpton tube however is the necessity of cutting down on the donor's vein.

In the author's technique a Kimpton tube is prepared and sterilized in the usual manner, filled with a small amount of a 3.8 per cent solution of sodium citrate and connected with a gauge 15

needle Five hundred cubic centimeters of blood are then withdrawn through the needle from the donor's forearm As the blood enters the tube it pushes the sodium citrate up as a layer, this making it possible to give the patient the entire amount of blood withdrawn without the risk of blowing air into the vein

After the withdrawal of the blood from the donor the needle is removed from the vein and from the tube and a swab of cotton soaked in 3.8 per cent sodium citrate solution is held over the nozzle of the tube until it is passed into the vein of the recipient The introduction of its tip into the vein is facilitated by holding the walls of the vein apart with fine forceps

It is necessary to cut down on the recipient's vein in all cases When the vein is very small it may be difficult to introduce the tip of the tube In such cases the author has incised the vein and tied a small needle in place just before taking the tube from the donor

CYRIL J. GLASPEL, M.D.

Korganowa Mueller F. S. The Causes of Reactions Following Blood Transfusion (Zur Frage ueber die Ursachen der Reaktion nach Bluttransfusion) *Russkaja klin.* 1925 iv 46

The causes of reactions after blood transfusion may be divided into two groups the technical and the biological Those of the first group include too

rapid transfusion, partial destruction of the erythrocytes in the passage of the blood through the needle especially in transfusion with pressure (syringes, apparatus for salt solution infusion), the formation of small unrecognizable clots (in direct transfusion), and, according to the opinion of many authorities, the toxic action of sodium citrate

Of greater importance are the biological causes Chief among these is faulty blood grouping It is necessary to determine the agglutinating properties not only of the erythrocytes but also of the serum The author believes that the agglutinating properties of the blood are constant In investigations made on 15 patients before and after anaesthesia (chloroform, ether, hedonal, lumbar anaesthesia) and before and after electrical and X-ray treatment he was unable to find any change in the reactions In several cases parallel tests of the serum corrected errors in the determination of the agglutination group and revealed their cause

In conclusion the author states that even with the determination of the blood group and perfection of the technique, the problem of blood transfusion has not been solved as there are apparently other biochemical properties of the blood which are of great importance As blood transfusion may be associated with danger, it should be performed only when it is definitely indicated

Block (Z)

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Souttar H S Ormond A W Kilner T P  
Pooley G H and Others Discussion on Plastic Operations on the Face in the Region of the Eye *Proc Roy Soc Med Lond* 1926 19 Sect Ophth 14

The problem of the removal of hairy moles from the region of the eye is distinct from the relatively simple problem of removing them from other parts of the body.

SOUTTAR uses arm flaps in this operation and recommends them especially for children. They must be fairly long to allow room for proper care and cleansing.

ORMOND repairs loss or injury of the eyelids with (1) autoplasic or homoplastic flaps augmented by bone or cartilage or (2) grafts either pinch or Thiersch applied directly or over molds. The island flaps advocated by Esser and Arnheim have a good cosmetic effect as there is no turned skin pedicle to be seen subsequently and the tension is equal everywhere. These grafts have a free surface all around and are nourished by a subcutaneous pedicle that contains an adequate blood supply.

The shifting of healthy neighboring skin into the defect is not always successful in this region because of subsequent contraction.

Contracted sockets present a problem because the lost lining is difficult to restore and mucous membrane grafts and epithelial inlays undergo marked contraction when they are placed on soft tissue with no firm attachment to prevent their shrinkage. If the socket could be filled with cartilage, paraffin or filigree ball and a convex stent with epithelium over it applied to this firm surface a better working basis would be established.

The technique of Thiersch grafting is important. A large 1 in flat bladed knife is used. The field is kept moist with saline solution. The graft is removed from the knife blade with needles and a stream of saline solution and minimal handling. It is made as large and as thin as possible. All granulations are cut from the wound with scissors and perfect hemostasis is then obtained by pressure. The wound is dressed dry and the dressing left on for a week and then soaked off.

KILNER reports that in cicatricial ectropion from whatever cause he obtains uniformly good results from the use of the epithelial outlay. An incision is made from canthus to canthus just outside the ciliary margin the sulcus is deepened and all scar bands are opened until the lid can be placed in an overcorrected position. A mold is made of the resultant raw surface a Thiersch graft is draped over

the mold and the mold and graft are applied to the raw surface and fastened with sutures running through the edges of the wound and the graft and tied over the mold. Failure of this method is usually due to its use when the lining of the lid is missing and a more extensive lid replacing operation is necessary or failure to excise all of the scar tissue.

New eyebrows are supplied either by pedicle or free Wolfe grafts from the scalp. The functions of the eyebrows are to protect the eye from the sun from sweat (in their absence sweat runs into the eye) and from the wind.

Symblepharon was successfully treated in two cases with Thiersch grafts over molds placed in the sulci that remained after the lids were carefully dissected away from the globes.

POOLEY states that when in cases of defects caused by surgical procedures the areas are fairly free from sepsis plastic repair may be done immediately. Fairly clean accidental wounds can be repaired as soon as they are clean and quiet. Burned areas should not be repaired until contraction of the scar has become nearly stationary. Areas resulting from sepsis and sloughing should not be repaired sooner than twelve months after activity has ceased as there is danger that the sepsis may light up.

All scar bands should be freed around the lids and the edges retracted as far as possible before the new flaps are put in position. A large flap with a wide pedicle is the most satisfactory and should be crowded into the defect rather than stretched across it. This applies to the full thickness of the flap it being important not to leave any hollows in the subcutaneous area under the suture line. Pooley usually sews the two lids together to keep them motionless during healing. The flap is left in place about six months. It is then detached and its base returned to its original bed. All bleeding is stopped but some subsequent bleeding under a pedicle flap will not hurt it. Hot fomentations are used if the vitality of the flap looks doubtful during the first few days. A mixture of methyl violet 1/2 per cent brilliant green 1/2 per cent alcohol 35 per cent and water 64 per cent is used for preparation because other chemicals cause too much irritation of the conjunctiva.

Arm flaps are unsatisfactory because their use causes discomfort. The use of free skin grafts are also unsatisfactory because of the subsequent contraction.

Pooley has found the use of grafts in symblepharon unsatisfactory but obtained a successful result by stitching a sheet of rubber into the sulcus obtained by freeing the lid from the globe and allowing it to remain in place for months until epithelium had grown over the raw surfaces.

SHAW uses forehead flaps for repair after the excision of hæmangiomas, but advises against the removal of such growths from the lids by excision. In one case adequate blanching of the lower lid was obtained by searing it with the electrocautery on two occasions.

OLIVER believes that the poor success of inlays in the orbit is the fault of the operator. He removes everything down to the periosteum, cuts one large graft, and fits the graft very snugly into the orbit over a mold.

EDMUNDS has found rodent ulcer to be responsible for the greatest number of restorative problems about the eye. The removal of the growth is usually easy. Repair is best obtained with sliding flaps and can usually be made at the time of the removal of the growth. If the globe is involved and excision is done, the orbit can be closed with sound skin. When this is done the result is not very noticeable if spectacles are worn. When the lids are to be restored with forehead flaps, preliminary cartilage grafts may be put in the flaps. J. B. BROWN, M.D.

**Balfance Sir C.** Some Experiments on the Con-  
duct and Fate of a Ligature Made from the  
Parietal Peritoneum of the Ox When Im-  
planted in Living Tissue. *Lancet* 1906 cxxi 10

In the author's opinion, the best material for ligatures is the parietal peritoneum of the ox. This is strong, inelastic, smooth, and pliable, slowly absorbed, and easily rendered aseptic.

When a ligature is absorbed, it is replaced by new living tissue. The arrangement of the fibers of the new tissue is influenced by the structure of the ligature and the stages in which it yielded to solution. The new tissue is formed along the lines of the old tissue. The old tissue is absorbed by the new, and as it is absorbed, new tissue is put down in its place.

When an artery is ligated the attack of the invading cells on the ligature is confined for some time to the surface of the ligature which is farthest from the arterial wall. This is due to the tension of the structures within the loop of the ligature.

The anatomical features of plain and chromicized ligatures observed under the microscope are identical. Chromicized ligatures and those made from broad strips of membrane resist absorption for a much longer period than plain ligatures and those made from narrow strings.

The multitude of cells which collect around the ligature is a striking and early manifestation of the reaction of the tissues to the presence of a foreign body in their midst.

When a peritoneal ligature is made from broad strips of tissue, absorption takes place mainly from the surface as it does in the case of kangaroo tendon. A chromicized ligature of ox peritoneum made from broad strips of membrane appears to be perfect for the ligation of a large artery in continuity or for herniotomies. As this ligature resists absorption for a somewhat longer period than catgut, it may be

employed to advantage also in many other operations. Ox peritoneum ligature is superior to catgut for all purposes. However, unless it is made in large quantities it would probably be more expensive than catgut. MORRIS H. KAHN, M.D.

## ANÆSTHESIA

**Lundy J. S.** Balanced Anæsthesia. *Minnesota Med.* 1906 ix 399

After discussing the suitability of the various forms of anæsthesia, Lundy comes to the conclusion that no one of them meets all the requirements of the surgeon, internist, anæsthetist, and patient, but that a combination of the various agents might be used each in an amount small enough to prevent its having an unsatisfactory effect. The proper combination of these agents produces a balanced anæsthesia. Thus, after the administration of a moderate amount of preliminary hypnotic, local anæsthetic, and nitrous oxide or ethylene, sufficient ether should be given to produce the desired result.

If carbon dioxide is used, it is probable that much larger preliminary doses of morphine can be given with safety, because respiration can be readily controlled and the rate of absorption of ether during the operation and of its elimination after operation can be hastened. Carbon dioxide is especially useful when nitrous oxide or ethylene is being administered to children, because their respirations are normally unreliable.

Local anæsthesia is recommended for the extraction of teeth, operations on the eye, nose, throat, and brain, and for hernia. It can be used with particular advantage for laryngectomy. For perineal operations, especially hæmorrhoidectomy, and for operations on or through the adult urinary bladder, certain forms of local anæsthesia can be employed advantageously.

The average gaiter operation is facilitated by the induction of light general anæsthesia in addition to local anæsthesia. Radical amputation of the breast is best performed under general anæsthesia. The best combination of anæsthetics for thoracoplasty and various types of intra-abdominal operations is detailed.

The advantages and disadvantages of local infiltration and of regional anæsthesia are discussed. Regional anæsthesia has certain disadvantages: its induction is frequently slow, reactions sometimes occur, and little hæmostasis is produced. It can often be advantageously combined with local infiltration.

The dosage of novocain and epinephrin depends upon the weight, age, blood pressure, and pulse rate, since these have a profound effect on the patient's tolerance. The author gives a general formula illustrated by examples in which these special factors vary. The degree of untoward reaction to novocain varies directly with the rate of absorption of the drug; hence more of the drug can be given in dilute solution than in a concentrated solution. The author employs about 5 mm. of a 1:1000 solution of adre-

nalin chloride to each 100 c cm. of novocain solution unless he has reason to believe that its use is contra-indicated by the patient's general condition or by an untoward reaction to the first part of the injection.

**Lundy J. S. Pulmonary Complications Following Ether and Ethylene Ether Anesthesia.** *Med J & Rec* 1926 CIV 87

In order to compare ethylene ether and ether in their effect on the incidence of postoperative pulmonary complications and the mortality, Lundy reports the results of two parallel series of 600 cases each.

For every operation performed under ethylene ether anesthesia a corresponding operation was performed under ether anesthesia, the conditions with regard to site, date and meteorological factors being identical. There were 560 cases of duodenal ulcer, half in each series; sixty-six cases of gastric ulcer, and 574 cases of cholecystitis, 344 with stones and 230 without.

The most favorable results from the viewpoint of anesthesia, postoperative pulmonary complications and mortality were secured in the cases of gastric ulcer when ethylene ether was used, and in the cases of cholecystitis when ether was given.

The best results from the viewpoint of anesthesia and the incidence of postoperative pneumonia in cases of duodenal ulcer followed the pre-operative

administration of morphine and atropine and the use of ethylene ether anesthesia.

Anesthesia was satisfactory in 85 per cent of the cases on the average. The relative percentages in the ethylene ether group and the ether group varied in the different operations. It must be borne in mind that the choice of anesthetic depended to a varying degree on the condition of the patient and the personal preferences of the surgeon. Other factors besides the anesthetic, some of them doubtless unknown, affected the incidence of pulmonary complications and the mortality.

Since the percentage of ether required in the different operations varied so widely, it is impossible to draw general conclusions regarding the comparative value of the two types of anesthetic or the effect of the pre-operative administration of hypnotics. What is proved in one type of operation is disproved in another. The absence of bronchopneumonia following operations in the large series of cases of duodenal ulcer and the smaller series of cases of gastric ulcer under ethylene ether without preliminary medication is no criterion for the establishment of such a routine in surgery of the upper abdomen. The figures for operations on gastric ulcer under ethylene ether anesthesia show that bronchopneumonia did not follow in any case, regardless of the institution and type of pre-operative medication. Preferences must be limited by the type of operation, and no generalizations can be made.

# PHYSICOCHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Hueck H. *Irradiation Treatment of Sarcoma* (Zur Strahlenbehandlung der Sarkome) *Arch f klin Chir* 1926, cxxxix 607

The histological character of connective tissue tumors is not a definite criterion of the reaction of such tumors to irradiation. Sarcoma of the young cell type is usually influenced relatively favorably, whereas tumors of a more highly differentiated cell structure are more resistant.

In the period from 1920 to 1925, more than 100 cases of sarcoma were treated at the Rostock Clinic. The author's study is based on fifty five of these. In ten, only X-ray treatment was given, in twenty four the X-ray treatment was preceded by an incomplete operation consisting usually of the excision of a specimen for diagnosis, and in fifteen it was preceded by a radical operation. There were six patients who came for the treatment of a metastasis following a radical operation.

The treatment consisted as a rule of three or four exposures in each of which from 80 to 100 per cent of the skin erythema dose was applied directly to the tumor. In the cases of easily reacting tumors smaller doses were given at more frequent intervals. There were no burns.

Thirty three of the fifty five patients have already died and three have recurrences. Eight of the remaining nineteen have no recurrence as yet, but as they have been under observation for only a year and a half at the longest they cannot be considered in judging the value of the treatment. In eleven cases (20 per cent) a good result has been obtained for a period ranging from two to five years.

The time of the reaction to the irradiation was extremely variable. Lymphosarcoma reacted most quickly, but the ultimate results in these cases were not at all favorable. As a good result was apparent in myelogenous sarcoma of the epulis type the author is of the opinion that irradiation treatment is justifiable in these cases to avoid a mutilating operation. With regard to the other types the author says that the surgeons of the Rostock Clinic, recognizing the uncertainty of irradiation, prefer to deal with operable sarcomata by excision.

DUSCH (2)

Mattick W L. *Some Practical Considerations in the Application of Deep Roentgen Therapy to the Treatment of Malignant Disease* *Radiology* 1926, viii 1

This is a description of the methods found to be of practical value in the treatment of malignant

disease at the State Institute at Buffalo, New York. Brief consideration is given to the theories of the action of radiotherapy and to some of its known effects in animal tissue and in the human organism.

The author regards the gamma ray of radium and the roentgen ray as practically the same in properties and action and uses them more or less interchangeably or in combination. He believes it is essential to work with isodose curves for all deep roentgen ray treatment and also in the use of all types of radium containers and packs.

In the technique of deep roentgen therapy, a kilovoltage of 200 kv, a filtration of 0.5 mm of copper and a milliamperage of either 8 or 30 are constant factors. The dosage is varied by varying the time and skin target distance to suit the requirements of the particular case. The treatments are usually given in divided doses. In order to reduce irradiation sickness to the minimum it is important to use as small a field and as short an exposure time as are consistent with good results.

The methods used are classified into (1) those of value for lesions at or near the surface and (2) those of value for lesions in the interior of the body. The first are used for lesions requiring moderate or light dosage which can be given in single fields. The method employed in treating mammary carcinoma is described in detail. For irradiation of the cervix the body of the uterus the rectum, the prostate, the bladder the vagina, etc., cross firing through two opposite parallel fields is done and radium is applied locally by seeds or tubes, or both.

The article includes dosage tables devised to simplify the measurement of dosage in the treatment of two opposite parallel fields by the cross fire method. When it is necessary to employ more than two fields in cross firing measurements should be made with the isodose curves or the field selector of Holfelder applied to an exact diagram of the part that is to be treated.

Among the special methods that have proved of value are the three triangular fields method for the irradiation of localized tumors 2 or 3 cm under the surface of the skin and the triangular box method which is especially valuable for tumors about the knee and ankle joints. The latter and a method used in the treatment of carcinoma of the pylorus are described briefly.

The results obtained in a large variety of cases are summarized. In conclusion the author states that only 30 per cent of cases of malignancy could be treated satisfactorily by radiotherapy.

ADOLPH HARTUNG M D



## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Blotner H and Fitz R. *On Diabetic Gangrene with Particular Reference to the Value of Insulin in Its Treatment* Boston M & S J 1926 CXCII 1155

The authors report a clinical study of diabetic gangrene in sixty nine cases observed at the Peter Bent Brigham Hospital Boston. In their experience gangrene has been a relatively frequent complication of diabetes occurring in 7 per cent of the cases.

Gangrene usually depends upon obliterative vascular lesions in the extremities of elderly persons suffering from diabetes with superimposed infection thrombosis or osteomyelitis but it may occur also in young person with essentially normal blood vessels and it may be of infectious origin. One attack does not prevent subsequent attacks.

The underlying cause of the vascular disease encountered in the majority of cases of diabetic gangrene is unknown. In the cases reviewed by the authors syphilis was of little importance as an etiological factor and the relation of the biochemical changes in diabetes to the development of arteriosclerosis was a matter of speculation.

In 63 per cent of the cases trauma was the immediate cause of the gangrene. Frequently this was of a very minor nature. The cases in which the condition developed during the winter were more numerous than those in which it developed during the summer. Two patients developed gangrene while at rest and under observation in the hospital. Minor injuries cold weather and lack of exercise therefore seemed to be important factors in the precipitation of the gangrene.

Diabetic gangrene has a notably high death rate. Twenty three per cent of the patients studied by the authors died while they were under treatment in the hospital. The most important immediate cause of death was infection. At times an overwhelming general infection developed from a small local lesion. Other less important causes of death were shock or unavoidable vascular accidents.

Gangrene is often a preventable complication of diabetes. The avoidance of dirt of minor injuries of chilling of the hands and feet and of a too sedentary life are important prophylactic measures.

The treatment of gangrene consists in the employment of medical or surgical measures. On the whole the authors' experience with medical treatment has been disappointing but in a few cases with very superficial and small gangrenous areas the condition cleared up under diet rest and various forms of physiotherapy.

The authors have been particularly interested in the effect of insulin upon the surgical treatment of diabetic gangrene. Up to October 1922 when insulin was first used in the Peter Bent Brigham Hospital the mortality in cases of gangrene was 25 per cent while since that date it has been reduced to 18 per cent.

From a comparison of cases of diabetic gangrene treated surgically with and without insulin it appears that the use of insulin rapidly desugarizes patients before operation and renders it possible to give them a liberal diet during the period of convalescence from operation. Before the days of insulin some patients died in coma whereas others were forced to undergo prolonged periods of malnutrition in preparation for operation and during convalescence and as a result suffered progressive loss of weight and strength became unresistant to infection and finally required repeated operations and died after a protracted illness. Since the use of insulin patients are made free from acidosis and prepared for operation in a few hours and shortly after operation are able to eat an adequate diet as the result of which they gain weight and strength resist infection and recover from their illness rapidly.

In conclusion the authors state that the proper use of insulin in the treatment of diabetic gangrene is as important as is the proper use of insulin in the treatment of diabetic coma.

CYRIL J GLASPEL MD

Minot G R. *Lymphoblastoma* Radiology 1926 VII 119

This article summarizes the data presented in two previous articles on 477 cases of various types of lymphoblastoma exclusive of lymphatic leukemia which were studied at the Huntington Memorial Hospital Boston. The incidence of the disease as regards age and sex its duration and the effect upon it of roentgen ray and radium irradiation and surgery were considered.

The condition began most frequently between the ages of 20 and 24 years and next most frequently between the ages of 35 and 39 years. The majority of the patients were males. The duration of the condition was longer in females than in males and did not seem to be greatly affected by irradiation. In some cases surgery had a beneficial effect, particularly if it was thorough employed early and followed by irradiation.

Four hundred and one of the patients died after an average duration of the condition of 2.76 years. About 20 per cent of both those who were irradiated and those who were not irradiated had the disease for six years or longer. A greater percentage of the

seventy six living patients have had lymphoblastoma for this length of time and a greater percent age of these than of those who died had surgical and early irradiation treatment

Irradiation is undoubtedly of great value in lymphoblastoma, in spite of the fact that it does not appear to have a notable influence on the duration of the disease, it alleviates the symptoms, decreases the size of the lesions, and improves the patient's efficiency

In many of the cases observed abdominal disturbances were the initial symptoms or developed early in the course of the condition. Late in the disease such symptoms occurred with very great frequency. After their development the prognosis for long duration of life becomes less favorable

ADOLPH HARTUNG, M.D.

#### Desjardins, A. U. Radiotherapy for Lymphoblastoma. *Radiology* 1926, VII 1-1

In a study of seventy three cases of Hodgkin's disease and fifty five cases of lymphosarcoma made in 1923 it was found that the average duration of these diseases when untreated was two years and seven months and two years and five and one half months respectively. Granting that at best, such a determination can be only approximate it nevertheless suggests a close relation between these two conditions

In this article the author reviews fifty seven cases of Hodgkin's disease and 126 of lymphosarcoma which were treated at the Mayo Clinic in the period from 1920 to 1923 inclusive. As in the former group the diagnosis was confirmed by microscopic examination of the tissue. The histories and the findings of examination paralleled closely those of the previous series. The average duration of the disease was three years and two months in the cases of Hodgkin's disease and two years and four months in those of lymphosarcoma. As most of the cases had been treated more or less systematically by radiotherapy it appears that radium and roentgen ray treatment usually do not prolong life to a notable degree, although in individual instances a marked effect undoubtedly was to be attributed to such treatment. The prolongation of life in the Hodgkin's group was probably more apparent than real and due to the fact that this study was made after a shorter follow up period. The amount of treatment given each patient may also affect the result of such a survey materially. A later study is contemplated which will consider the factors of the amount and kind of treatment

From the results of this study the conclusion is drawn that while life is definitely prolonged in individual cases radiotherapy does not notably prolong the average life expectancy of patients suffering from lymphoblastoma, but is able to control many of the distressing clinical manifestations so that the patient may be maintained in a relatively normal state of health for long periods during the course of the disease

#### Lumsden, T. Immunity in Relation to Transplantable Malignant Tumors. *Lancet* 19 6 CCXI 112

In fifty rats with a J. R. sarcoma in each hind foot one foot was injected with anti J. R. S. serum in three doses of 0.3 c.c. each, the circulation in the foot being coincidentally shut off by constriction at the ankle for from two to three hours. In all of these animals the tumor of the treated foot disappeared rapidly, while in thirty seven regression began also in the untreated foot from seven to ten days later and went on to complete cure. After the cure these rats were found to be absolutely immune to the tumor concerned and the immunity was of long duration. It appears that in order to effect a cure and evoke immunity gradual regression of the treated tumor is essential

There has been considerable difficulty in obtaining human cancer in a condition which admits of its culture, but certain *in vitro* observations suggest that cancer cells may have some ability to adapt themselves to repeated applications of antisera and to other adverse conditions. Although the findings made *in vitro* suggest that anti human cancer serum would be an ideal cure for mouse cancer, it does not act as such when it is injected into the tail vein of a cancerous mouse

As it was observed that both of two co existing tumors regressed when only one was treated, it appeared possible that products absorbed from the treated tumor gave rise to antibodies in the host which caused the subsequent absorption of the untreated tumor. To determine whether this was true the serum of immune and later of 'hyperimmunized' rats was applied to J. R. S. cells cultured *in vitro*. The J. R. S. cells so fed continued to grow as freely as ever, even when abundance of complement was present. There being thus no evidence of antibodies in the serum, an extract of many of the tissues of a 'hyperimmunized' rat was then added to the rat's serum, but again there was no injury to the cultured J. R. S. cells even though the rat from which these fluids had been taken was completely resistant to J. R. S. Accordingly, it was clear that there must be some fundamental difference between this 'homologous' immunity of an animal to a tumor of its own species and the 'heterologous' immunity evoked in a different species, for example, by injecting J. R. S. cells into a rabbit, sheep, or horse

Since no evidence indicating the nature of its immunity could be found in the blood or tissues of a 'hyperimmunized' rat, the possibility that its resistance was of nervous origin was considered. The fact that not only the veins leaving a tumor but also the arteries going to it are enlarged strongly suggests the action of a nerve reflex

The observations indicate that when a carcinoma is injected into a heterologous animal it calls forth at least two varieties of antibodies: (1) anti carcinoma antibodies and (2) antibodies to the group of animals from which the antigenic cancer was taken. Malignant cells appear to have a special liability to

antibodies of almost any sort for they are even more susceptible to a pure anti rat serum than the antigenic rat normal tissues

The mechanism of acquired immunity to a homologous tumor is still obscure but there is reason to hold that it is not brought about by means of antibodies such as are found in the serum of an animal into which heterologous tumor cells have been injected

The possibility that acquired immunity consists in the desensitization of some nervous mechanism cannot be ruled out entirely but no experimental evidence in favor of this hypothesis has been produced

MORRIS H. KAHN, M.D.

**Young J. The Earlier Recognition of Cancer**  
*Edinburgh M J 1926 ns xxviii Med Chir Soc Edinburgh 117*

This article is in the main a plea to the members of the medical profession of Great Britain for propaganda to educate the public in the earlier recognition of cancer

Young states that statistical study of the after results of cancer treatment finds few adequate records in Great Britain. He believes that this difference of hospital routine is one of the reasons why the urgent need for cancer propaganda is less acutely realized in the British Isles than in America and on the Continent

Attention is called to the fact that the more favorable prognosis of accessible cancer as compared with inaccessible cancer is due in large part to easier recognition of the former. Although the results obtained in breast cancer are handicapped by a disease duration of more than one year in over 40 per cent of the cases, nearly half of the patients survive for three years and one third survive for five years after operation

Carcinoma of the female generative organs is responsible for about 6,000 deaths, skin cancer for about 2,000 deaths, and cancer of the buccal cavity for about 3,000 deaths yearly in Great Britain

In conclusion Young states that there is now ample evidence that the aims of propaganda are being achieved in America and on the Continent as cases are coming under treatment at an appreciably earlier stage than formerly

JACOB S. GROVE, M.D.

**Fowler L. H. Malignant Epithelial Neoplasms, Carcinoma and Epithelioma Occurring in Persons Under 26 Years of Age** *Surg Gynec & Obst 1926 xliii 73*

Carcinoma is much more common in youth than is generally recognized. The author reviews 112 cases of pathologically demonstrated carcinoma and epithelioma in patients under 26 years of age who were operated on at the Mayo Clinic between January 1914 and January 1924. There were eighty-nine cases of carcinoma and twenty-three of epithelioma. Only purely epithelial tumors are included. The youngest patient was 1 year of age. The total known mortality was more than 50 per

cent. Eighteen and seven tenths per cent of the patients could not be traced. Only 14.2 per cent were alive more than three years after the operation.

Heredity is considered to be the most important etiological factor in carcinoma of the young.

The pathology of the neoplasms varied in the different organs. The cells showed different degrees of differentiation. The large undifferentiated cells with large oval or round nuclei and deeply staining nucleoli (one-eyed cells) predominated. Lack of hyalinization, fibrosis, lymphocytic infiltration, and cellular differentiation may have been responsible for the greater malignancy of these neoplasms in the young as compared with those in older subjects.

Nearly every organ in the body has been the site of carcinoma in the young. The rectum and ovary were most frequently involved (fourteen cases each, 12.5 per cent). The highest known mortality (85.7 per cent) occurred in the cases of carcinoma of the rectum. No patient with this condition was known to be living longer than one year. The other organs were involved as follows: the stomach in nine cases (8 per cent), the thyroid breast and kidney in seven cases each (each 6.5 per cent), the testicle lip and cervix in five cases each (each 4.4 per cent), and miscellaneous organs in thirty-nine cases (34.8 per cent). Anæmia is a prominent feature of carcinoma of the right half of the colon in youth as it is in the same condition in adult life.

Involvement of the neighboring lymph nodes in carcinoma of the breast and large intestine in youth reduces postoperative life and increases the ultimate mortality. In youth carcinoma in the thyroid is usually found by the pathologist and not by the surgeon; it is intracapsular and its mortality is low.

Brodie's classification and grading of epithelioma is applicable in youth as well as in adult life. Seventy-two and six tenths per cent of epitheliomata in youth belong to the more malignant groups (Grades 3 and 4).

## SURGICAL PATHOLOGY AND DIAGNOSIS

**Nasaroff W. M. The Healing of Skin Wounds**  
*(Ueber die Heilung von Hautwunden)* *Verhandl d 26 russ Chir Kong Moscow 1925 p 114*

In all types of healing of skin wounds there are regenerative and degenerative processes to be differentiated. During the first forty-eight hours the well-known morphological processes are influenced by ferments. According to Gaza, these are of three types: the autolytic, the heterolytic, and the histolytic. They produce tumescence and liquefaction of the fibrils of the fibrin and of the paraplasmic elements.

As early as six hours after the injury the author was able to observe the appearance of small thin fibrils at the borders of the extravasated blood and the tissue which remained normal. These stain differently from fibrin with the Mallory stain. Nasaroff believes they are pre-collagen fibers which are formed without the action of fibroblasts as the result of the

presence next to each other of two different albuminous substances. Later they are acted upon by the fibroblasts and become shorter.

Nasaroff reviews the work he did in 1923 upon the regeneration of the nervous ends in cutaneous scars in man. In an aseptic wound the regeneration of nerves can be seen after one week, and after from twenty to twenty five days the epithelium is reached by the growing nerve fibers. In old scars, nerve endings of the most varying types are to be seen and sometimes even deformed Meissner corpuscles. The Vater Pacini corpuscles, fatty tissue, hairs and glands do not seem to regenerate. Glands can regenerate only when the excretory duct alone has been injured.

KORNMAN (Z)

Gurgolaff, S. S. New Findings with Regard to Wound Healing (Neuere Ergebnisse ueber Wundheilung). *Verhandl d 16 russ Chir Kong Moscow*, 1925 p 118.

The author reviews the findings of studies made by himself and his students on wound healing which he classes with the inflammatory processes. Three periods are to be distinguished. The first or preparatory period is that in which the trauma, the solution of continuity of the tissues, the injury of the nerve fibers, and the coagulation of the extravasated blood and lymph occur. In this period two zones may be distinguished, the zone of passive destruction with

fermentative processes, and the zone of active regeneration.

The second period, which begins a few hours after the first may be called the first stage of regeneration. It is characterized by an increased hydrogen ion concentration i.e. a local acidosis. The author measured this acidosis in aseptic wounds. It begins very suddenly, increases for forty eight hours and then decreases so slowly that fourteen days after the injury conditions in the scar are not yet normal. To this first stage of regeneration belong the appearance of mesodermal elements, the new formation of the capillaries, and the formation of precollagenous and collagenous fibers.

In the third period, the period of true scar regeneration the local wound reaction again becomes weakly alkaline and contraction of the scar occurs. At the same time there may be demonstrated the processes of the second stage of regeneration. To this stage belongs the restoration of function. The collagenous fibers as well as the elastic fibers reach their full development, the vascular system becomes organized, and the scar becomes penetrated by elements of the peripheral nervous system, a process of great importance for function. Only when there is complete restoration of the relation of the part to the organism by means of the nerves can the healing process be regarded as entirely complete.

KORNMAN (Z)

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NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

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# SUBJECT INDEX

- ABDOMEN** Subphrenic abscess with vomited gall bladder, 10, puncture of, in diagnosis of acute intra peritoneal disease 215, Fahræus reaction in acute surgical affections of 215, roentgenological signs of effusion in 2, 9 free gas in, 296, urgent surgery of 297, ruptures of pancreas in injuries of 394, contra indications to surgery in acute affections of, 395, subphrenic abscess, 397, subphrenic infection after appendicitis 475
- Abdominal puncture** in diagnosis of acute intraperitoneal disease 215
- Abortion** Giving students practical instruction in management of 316
- Abscess** Subphrenic, with vomited gall bladder 210 subphrenic 397, subphrenic infection after appendicitis, 475 *See also* names of organs
- Accommodation** Mechanism of 2
- Acetabulum** Lesions of in osteochondritis of hip 47
- Age and primiparity**, 486
- Albromin** as substitute for novocain for local anæsthesia in intracranial operations, 19
- Ammonium chloride** as urinary acidifier, 323
- Anæmia** Gaucher's disease with bone and joint involvement 3 splenic of young children treated by splenectomy, 115 intestinal origin of pernicious 33,
- Anæsthesia** Cystic, purulent cerebrospinal meningitis following lumbar, induced with novocain 56 demonstration of spinal 56 intra-orbital 90 epidural for perineal prostatesctomy 131 recent developments in technique of regional 142, diagnosis and treatment of paranasal sinus infections in infants and young children under ethylene 183, local in intracranial operations 19 changes in blood pressure under influence of operations 499 effect of operation and on calcium content of blood 501 change in catalase index of blood under influence of surgical operations 501 changes in viscosity of blood under influence of, and operation 501 changes in number of the erythrocytes and blood platelets during postoperative period 502 balanced 503, pulmonary complications following ether and ethylene ether, 506
- Aneurism** Cerebral causing ocular symptoms 9, of abdominal aorta with gastric symptoms treated by introduction of silver plated wire into sac of 415, cure of gigantic traumatic arteriovenous of abdominal aorta and inferior vena cava by Moore Corradi method 499
- Angina pectoris** Effect of paravertebral injections in 195 sympathectomy in 458
- Angioscotometry** 447
- Antrum of Highmore** *See* Maxillary sinus
- Anuria** for seven days after catheterization of ureters 128
- Anus** Empalement wounds of, 111 imperforate corrected by operation 111 simple bloodless operation for prolapse of in children 475
- Aorta** Circulatory disturbances in embolism of below origin of inferior mesenteric artery, 334 aneurism of abdominal with gastric symptoms treated by introduction of silver plated wire into sac of aneurism 415 cure of gigantic traumatic arteriovenous aneurism of abdominal and inferior vena cava by Moore Corradi method 499
- Appendicitis** In pregnancy, 108 study of acute based on material of Municipal Military Hospital of Moscow 104 nature of chronic, 108 pylophlebitis and liver abscess following 109 chronic according to statistics of Municipal Military Hospital of Moscow, 109 recurrent following appendiceal abscesses 08 cholecystitis and 211, urgent surgery of abdomen 97 during pregnancy and puerperium 311 urgent treatment of acute, 474 subphrenic infection after 475
- Appendix** Recurrent appendicitis following abscesses of 08
- Arc light** Value of concentrated in roentgen and radium lesions of skin 338
- Arm** Treatment of deformities of upper extremity 48 pain in following operation for rupture of pancreas and spleen 13
- Arteries** Changes in in progressive hydronephrosis of rabbits with complete ureteral obstruction 36 effect of ligation of one branch of renal artery on rate of development of hydronephrosis 24 effect on rate of development of hydronephrosis of simultaneous ligation of posterior branch of renal artery and ureter on same side 24, significance of collateral pulse in diagnosis of injuries of large of extremities 334 simple and combined ligatures of pulmonary vessels 464
- Arteriotomy** for embolus obstructing circulation in extremity 53
- Arthritis** Non infective in women 134 *See also* Joints and names of joints
- Atlas** Anterior dislocation of as cause of inability to swallow solid foods 187
- BACK X-RAY** Systematic diagnosis in 46
- Bacteria** Effect of cathode rays on *in vitro* and in fresh wounds 337 virulence test in gynecology and obstetrics 401
- Basedow's disease** *See* Goiter
- Bile** Significance of pigment 111 production of duodenal ulcer by exclusion of from intestine 208
- Bile duct** Dilatation of common in absence of functioning gall bladder 114 exposure of common in operation for recurrence of stone after cholecystectomy, 212 fatal biliary peritonitis after puncture of common 217, hydatid cyst of opening into bile passages and causing formation of cholechocho-cutaneous biliary fistula 94 treatment of idiopathic cyst of common 95 healing processes in defects of and in artificially produced bile passages 96
- Bile ducts** Unusual visualization of by roentgenograms of barium meal 2, hydatid cyst of liver opening into bile passages and causing formation of cholechocho-cutaneous biliary fistula 94 healing processes in artificially produced 96
- Biliary tract** Giardiasis of 114 evolution of early to late disease of 210 diagnosis and treatment of disease of 10 diagnosis and treatment of infections of 390 relation of infections of to genesis and excretion of urobilin 391 phases of surgery of 39 late result of fistula from with implantation of fistulous tract into stomach 394 recurrent pain and discomfort after operations on bile passages with particular regard to anastomosis between and duodenum 478 *See also* Bile ducts Gall bladder Liver, and biliary conditions and operations
- Bilirubin** Two forms of demonstrated by van den Bergh reaction, 391



## Biopsy Value of 481

Bladder Cystogram study of prolapsus of 5 stages in formation of diverticulum of 30 rupture of during cystoradiography 19 unusual obstruction of 130 absence of shadow in roentgenography for vesical calculi 130 tumors of 33 contracture of neck of 411 perforation of in extra uterine pregnancy 489 490 leucoplakia of 494 See also Urinary tract

Blood Diagnostic criteria of chronic parathyroid insufficiency with special reference to phosphorus content of 1 effect of periauricular sympathectomy on circulation of 13 interglutination of maternal and fetal in late toxemias of pregnancy 31 preservation of for transfusion 53 action of roentgen rays on regeneration of 53 relation of cholesternemia and calcemia in thyroid conditions to basal metabolism 95 changes in caused by plectomy 117 pulmonary complication in gastric surgery treated by autohemotherapy 95 stability of suspension of in acute surgical affections of abdomen 15 calcium ion concentration of in puerperal eclampsia 20 bacteria in after operation 33 increase in quantity of during pregnancy 310 circulatory disturbances in embolism of aorta below origin of inferior mesenteric artery 334 treatment of inoperable carcinoma with serum of young persons 330 reactions of maternal-fetal 404 influence of chemical light baths on bactericidal processes in 419 hydremia in certain postoperative syndrome 419 effects of partial tracheal obstruction on circulation of in morphinized dogs 403 relation of change in following plasmectomy to function of plectin in forming 419 part played by coagulability of in development of postoperative phlebitis 409 effect of operation upon change in coagulability of 501 change in catalase index of under influence of surgical operations 501 changes in viscosity of under influence of anaesthesia and operation 501 effect of operation and narcosis on calcium content of 501 changes in number of erythrocytes and blood platelets during postoperative period 502 change in number of leucocytes and leukocyte formula during postoperative period 50 See also Erythrocytes Leucocytes Hydremia Septicæmia

Blood pressure Changes in due to operation 490

Blood transfusion 416 preservation of blood for 53 simplified technique for by Kumpston Brown method 50 cause of reaction following 504

Blood vessel Proliferations of in uterine musculature 298 value of phenol sulphonephthalein test in renal and circulatory disease 35 excretion of phenol sulphonephthalein in circulatory disease 3 experimental and clinical investigations of functional condition of heart and following extirpation of cervicothoracic sympathetic chain 350 angioscotometry 44 sympathectomy in vascular diseases of extremities 460 innervation of of the lower extremity 490 treatment of peripheral vascular disturbances of extremities 500 See also Arteries Veins

Bone Gaucher's disease with disintegration of 3 indication for pedicled graft of and its advantage 50 thyroid metastasis to 95 metastases of cancer of breast in 101 criteria for establishing diagnosis of osteogenic sarcoma 15 Paget's disease of 32 behavior of after boring, transfixing with nail and wire extension 331 lesion of intermediate between myeloplasmata and that of age repair of cavities in in children 494 See also Fractures and names of bones bone disease and bone operations

Brain Cerebral aneurism causing ocular symptoms 9 pontine glioma 98 cure of fat embolism of following

fracture of leg and simulation, progressive paralysis 191 use of Meyer Schlietter sound in tumors of 101 treatment of traumatic frontal abscesses of 191 local anaesthesia in intracranial operations 192 differential diagnosis of tumor of 192 what may be expected from surgery in tumor of 192 effect of pressure on fetal heart sounds during labor 221 diagnostic importance of external puncture and simultaneous cervical and lumbar puncture in subarachnoid block 250 value and safety of simplified method of pneumoencephalography 271 See also names of parts of brain and brain condition

Breast Clinical and pathologico-anatomical diagnosis of tumors and cystic changes in 14 cysts of 14 clinical significance of pain in cancer of with special reference to bone metastases 101 X rays and radium in management of carcinoma of 101 cancer of female and radiation therapy 275 proper co-ordination between surgery radium and X ray therapy in cancer of 75 what every doctor should know about 75 treatment of cancer of from viewpoint of radiologist 25 bacterial flora of cancer of 318 relative value of various techniques in radiation treatment of carcinoma of 318 symposium of surgery of 378 X ray and metastasis in cancer of 462

Broad ligament Accidental section of ureter in hysterectomy for large fibroid in right 7 tumor of 306

Bronchi Visualization of hepatobronchial fistula by retrograde filling with iodized oil 15 roentgenological exploration of with iodized oil 101 investigations of effects of by means of jodumbrin and lipiodol 10 foreign bodies in tracheobronchial tree 197 radio-graphic exploration of bronchopulmonary system by means of lipiodol 197 care of bronchial stump following amputation of lung 198 lipiodol in diagnosis of bronchopulmonary lesions by bronchoscopic method 277 X ray diagnosis and localization of non opaque foreign bodies in air passages 380 use of injected iodized oil in roentgen ray diagnosis of bronchopulmonary conditions 461 See also Lung

Bronchiectasis Phrenic evulsion as aid in treatment of 11 value of contrast media for demonstration of 15

Broncho-coppy In thoracic surgery 19 for disease 381 in treatment of lung abscess 382

Brow presentations Mechanism of labor in 314

Bubonic plague Treatment of with bacteriophage 35

Burns Hypertonic sodium-chloride solution intravenously in treatment of extensive superficial 141 treatment of deep roentgen ray by excision and tissue lifting 33 prevention of toxemia of by tannic acid solution 33

CÆCUM Tuberculosis of 107 in efficiency of ileocecal valve 107 phlegmon of cured by resection 29 See also Colon Gastro-intestinal tract Intestines

Cesarean section Role of in treatment of eclampsia 31 spontaneous rupture during pregnancy following 121 technique of transperitoneal 221 types and technique of 315 in twin pregnancy 40 obstetrical history of patient who had even pregnancies after 486 ileus following 401

Calcæmia Relation of in thyroid conditions to basal metabolism 95

Calcaneum Diagnosis and treatment of fracture of os calcis 52

Calcium Metabolism in pregnancy 309 effect of operation and narcosis on in blood 501

Calib Legg Terhes disease of See Oostochondritis dolorans juvenilis

- Cancer** Electrothermic methods in treatment of neoplastic and allied diseases 51, precancerous states 145 of skin 145 234, in Massachusetts 146 contact of surgeon with problem of 147 carcinoma with hematuria showing consequences of pyelography 4 treatment of, with lead 234 339 inheritance behavior of cancer as simple mendelian recessive 234 nature and inheritability of spontaneous cancer in mice 234 mechanism of metastasis of 34 lethal effect of ultra violet light on normal and malignant tissues grown *in vitro* 338 treatment of inoperable carcinoma with blood serum of young persons 339 misconceptions regarding relation of heredity to 421 prevention diagnosis and treatment of in earliest stages 41 modern tendencies in treatment of 421 pathological diagnosis of, 421 repeated inoculations of animals with organisms of 421 statistics on before during and after war 434 practical considerations in application of deep roentgen therapy to treatment of malignant disease 507, immunity in relation to transplantable malignant tumors 509 malignant epithelial neoplasms carcinoma and epithelioma occurring in persons under 26 years of age 510 earlier recognition of 510 *See also* names of organs
- Carbuncle** Treatment of in man 55
- Carcinoma** *See* Cancer and names of organs
- Cardiospasm** treated by digital division 469
- Catalase** under Change in of blood under influence of surgical operations 501
- Cata act** Phaco anaphylactic endophthalmitis 89 lid traction the greatest safeguard against vitreous loss in operation for 18 Thomson's capsular 59 operation for immature when intracapsular extraction seems inadvisable 250 new technique for expression of cata actous lens in its capsule 60 late results of intracapsular extraction of 260
- Catheterization** Anuria for seven days after of ureters 18 of ejaculatory ducts 226
- Cathode rays** Effect of on bacteria *in vitro* and in fresh wounds 337
- Cauda equina** Unusual lesion of 193
- Cavernous sinus** Thrombosis of with suppuration in ethmoidal and sphenoidal sinuses 44
- Cerebellum** Otic abscess of 37
- Cerumen** Investigations regarding function of aural 90
- Cervicitis** from standpoint of pathology 298
- Cervix uteri** *See* Uterus
- Cheek** Noma with perforation of after mercury injection 448
- Chest** Diagnosis and treatment of metastatic tumors in 200
- Chlorides** Relation of, of body to disease of gastro intestinal tract 385
- Chloroma** Recent literature and case report of 39
- Chloanae** Congenital occlusion of 185
- Choked disk** *See* Papilloedema
- Cholecystectomy** 477 complete cholecystectomy versus in empyema of gall bladder 113 following perforation of cancer of gall bladder into peritoneal cavity 21 exposure of common duct in operation for recurrence of stone after 212 aids to 393
- Cholecystitis** And diabetes 113 development of carcinoma in calculous 113 clinical study of with aid of cholecystography 210 and appendicitis 11 spontaneous perforation in without stones 21 pathology and diagnosis of 294 treatment of and prevention of gall stones 295 acute following resection of stomach 95 types of mild termed strawberry gall bladder 301 with associated problems 392 clinical and pathological study of 46 pancreatitis with 478
- Cholecystography** 390 by oral method 22 simultaneous and test of hepatic and renal functions by sodium phenoltetraiodophthaleim X ray diagnosis of diseases of gall bladder 111 gall bladder diagnosis from standpoint of surgeon 10 practical value of Craham Cole method in diagnosis of gall bladder disease as compared with older method 210 study of cholecystitis by 10 in operative case 390
- Cholecystostomy** Complete versus cholecystectomy in empyema of gall bladder 113 following perforation of cancer of gall bladder into peritoneal cavity 12
- Choledochus** *See* Bile duct
- Cholelithiasis** *See* Gall stones
- Cholestinæmia** in thyroid conditions 93
- Choline** Treatment of ileus with 207
- Chondrodysplasia** 133
- Chorea** Etiology of gravidarum 40
- Chororetinitis** Globular masses on pupillary margin in acute circumscribed 260
- Choroid** Metastatic carcinoma of 447
- Cinnamic benzyl ether** Treatment of tuberculous lymphadenitis with 139
- Cisternal puncture** Diagnostic importance of in subarachnoid block 10
- Clavicle** Fixation of fractures of 230
- Cleft palate** Closure of congenital clefts of hard palate 368
- Club hand** Congenital and paralytic, 328
- Club foot** *See* Talipes
- Colds** Normal bacterial flora of nose and throat with variations during 4
- Colitis** Association of ileal stasis with 473 etiology and treatment of chronic ulcerative 474 roentgenological findings in ulcerative 474
- Collap** Relation of to sympathetic nervous system 457
- Colon** Surgery of gastrocolic fistula following gastroenterostomy 18 surgical treatment of diverticulitis of 20 polyposis of with engrafted malignancy 9 carcinoma of right segment of 20 gangrene of transverse 21 radical operation for postoperative peptic ulcer of jejunum with resection of 208 urgency of cancer of large intestine 90 relation of simple tumors of large intestine to cancer 390 pathogenic 390 *See also* Gastro intestinal tract Intestines parts of colon
- Colporrhaphy** Formation of double vagina by transverse for sterilization of female 307
- Connective tissue** Experimental production of annular ligaments as example of influence of function upon differentiation of 45
- Convalescence** Medical aspects of surgical 418
- Cornea** Dendritic degeneration of 89 influence of protein therapy on staphylococcal infection of rabbit 363
- Corpus luteum** Rupture of cyst simulating rupture of ectopic pregnancy 27 intraperitoneal hemorrhage from rupture of cyst of ovary 27 necrosis of of pregnancy 30 histological changes in thyroid in animals injected with extract of 449
- Coxa plana** *See* Osteochondritis deformans juvenilis
- Covalgia** Tuberculous cured by bone grafting with patient remaining in bed only twenty five days 50
- Cranium** *See* Skull
- Crucial ligaments** Operative treatment of knee joint instability following injury of 339
- Cystic duct** *See* Bile duct
- Cystitis** Granular nodular and cystic 130 chemical of urine reaction a vital factor in treatment of primary acute bacterial 323
- Cystocele** Cystogram study of 25
- Cystography** Study of cystocele and prostatic 2 rupture of bladder during cystoradiography 119 absence of shadow in roentgenography for vesical calculus 12

Cystostomy Suprapubic 324  
Cysts See names of organ

DANGLE foot Surgical treatment of 138

Deaf mutism Etiology of 261

Deafness Clinical and experimental study with physical agents in partial 183. *See also* Hearing

Decompression Influence of on experimentally produced papilloderma 191

Diabetes Treatment of surgical complications of 59  
cholecystitis and 113 surgery in 141 insulin in treatment of diabetic gangrene 508

Diaphragm Congenital hernia of 23

Diathermy Clinical and experimental study with physical agents in partial deafness 185 for tumors of bladder 323 surgical in laryngology 371 thermotherapy in treatment of pelvic inflammation 399

Diet in treatment of pre eclampsia 123

Diuresis Effect of iodothyreo lobulin on in pregnancy 121

Duodenopyjunostomy in complete congenital obstruction of duodenum 208

Duodenum Rational surgical treatment of ulcer of 104 histological and bacteriological examination of perforated ulcer of 106 supramesocolic stenosis of due to adhesive periduodenitis of ulcer origin 106 study of external pancreatic insufficiency as indicated by enzymes in duodenal juice removed with sound 114 pathogenesis of ulcer of 113 condition of vagus nerve in ulcer of 203 perforation of ulcers of 204 parenteral injection of albumin in ulcer of 204 resection implantation of into pancreas in carcinoma of stomach 205 acquired periduodenitis 20 complete congenital obstruction of treated by duodenopyjunostomy at nine days 208 experimental production of ulcer of by exclusion of bile from intestine 208 pathogenesis of peptic ulcer of 281 gastritis and duodenal ulcer associated with chronic duodenal ulcer treated by partial gastrectomy 5 ulcer of associated with chronic duodenal ulcer 8 ulcer with perforating ulcer of 83 *see also* following extensive resection of for ulcer 83 ureterotomy of 207 etiology and healing process of ulcer of in melena neonatorum 318

Visualization of by introduction of opaque fluid through Einhorn tube 189 anatomical study of arterial entic occlusion of 380 frequency number of bile location color set and acid in cases of ulcer of at Bellevue Hospital New York 470 management of ulcer of 470 surgical treatment of ulcer of with particular regard to operative anatomy and postoperative digestion physiology 471 surgical treatment of acute hemorrhage from ulcer of 471 approach to through left thoracic cavity in retroperitoneal perforation of 473 cholecystoduodenotomy 4 anastomosis between biliary tract and for recurrent pain and discomfort after operations on bile passage 4,8 *See also* Gastro intestinal tract Intestine

Dupuytren Contracture of palmar and plantar aponeuroses 28

Dysphagia Exostoses of cervical vertebrae as cause of difficulty in swallowing 187 anterior dislocation of atlas as cause of inability to swallow solid foods 187

EAR Investigation regarding function of aural curmen 90 hemorrhagic types of disease of occurring during epidemic of influenza 364 definite malarial in which middle was not affected 365. *See also* ear conditions and operations Deafness Hearing

Eclampsia Differential diagnosis between and true uremia 30 rôle of cesarean section in treatment of 31

interglutination of maternal and fetal blood in late toxemias of pregnancy 31 faecal metabolism in toxemias of pregnancy 31 diet in treatment of pre eclampsia 123 during labor 124 calcium metabolism in toxemias of pregnancy 220 laboratory tests in diagnosis 1 and control of 370 liver function tests with tetrachlorophenolphthalein in toxemias of pregnancy 370 classification of toxemias of latter half of pregnancy 404 glucose and in urine in toxemias of pregnancy 404 maternofetal blood reaction 404 treatment of 405 ten years experience with 405 magnesium sulphate intravenously in care and treatment of 487 immediate and late results in at Chicago Lying In Hospital 487 improved prophylactic method of treating 487 toxemia of pregnancy with convulsions at New York Lying In Hospital 487 toxemias of pregnancy 487

Ejaculatory ducts Catheterization of 216

Elbow Operative reduction of old traumatic dislocations of 51 end results in fractures about 135 arthroplasty of 320 total external luxation of 498

Electrocoagulation Electrothermic method in treatment of neoplastic and allied diseases 5 modern tendencies in treatment of cancer 421 conservative treatment of cervical erosions with 480

Electrothermy in neoplastic and allied diseases 5

Embolectomy Prognosis and technique of 415

Embolism Arteriotomy for in an extremity 53 cured case of fat of brain following fracture of leg and simulating progressive paralysis 191

Emphysema Relation of pleura to blebs and bullae of 193

Empyema As isolated organisms causing 16 in children 103 465 results of operative treatment of acute at Vladimir Children's Hospital 465 results of treatment of acute at Moscow Children's Hospital 466

Encephalitis Bilateral extirpation of upper sympathetic ganglia and periaxillary sympathectomy or cauterization in chronic and epidemic with parkinsonian syndrome 459

Encephalography Value and safety of simplified method of 211

Endocervicitis Gonococcal 26 from standpoint of pathology 93

Endocrine glands Changes in internal secretion after extirpation of uterus and operative and non-operative treatment and in normal climacterium 147

Endometrioma 308 experimental production of 308

Enteritis Phlegmonous a caecal phlegmon cured by resection 209

Epilepsy Late results of treatment of traumatic jacksonian 270 surgical treatment of traumatic 455

Erythrocytes Stability of blood suspension in acute surgical affections of abdomen 15 clinical value of sedimentation reaction of in surgery 23 changes in number of during postoperative period 401

Erythromelalgia Sympathectomy in 460

Lithotomy Complications following anaesthesia induced with 406

Ethmoid Unusual finding in 263 ethmoidal mucocoele with invasion of orbit 36 upsurge in 447

Ethylene Diagnosis and treatment of paranasal sinus infections in infants and young children under anaesthesia induced with 183

Exostosis bursata 28

EYE Mechanism of accommodation 2 cerebral aneurism causing ocular symptoms 9 examination and management of recent mechanical injuries to 8, result of treatment by artificial light on phlyctenular and other tuberculous lesions of 89 intra-orbital anaesthesia 90 limitations of slit lamp microscopy of living and pos

- ability of overcoming them 90, metastatic intraocular mycosis, 181, tuberculosis of, 181, relation of aperture of to ocular function 59 metastatic carcinoma of choroid 44, plastic operations on face in region of, 504 *See also* parts of eye and eye conditions and operations
- Lyeld Traction on greatest safeguard against vitreous loss in cataract operation 182
- F**ACE Plastic operations on, in region of eye 504  
Face pre-entation Rupture of uterus in case of 406  
Facial paralysis, Results of hypoglossofacial anastomosis for, 455  
Ishraeus reaction in acute surgical affections of abdomen 215  
Fallopian tubes Sudden torsion of dermoid cyst of ovary involving during pregnancy 12 cholelithiasis and chronic salpingo oophoritis with adherent abdominal scars 211 simultaneous rupture of both 18, ovarian pregnancy following operation for tubal pregnancy on same side 20, primary carcinoma of 304 sterility due to closure of treated by salpingostomy 304 treatment of pelvic infections 30, pelvic inflammation in women 399  
Fascia Suture of in hernia repair 104 experimental results in use of grafts of dead for hernia repair 01  
Femur Fractures of head of, 230 mechanical employment of sequestrum fracture of 250 relationship of capsule of hip joint to fracture of neck of 333 prognosis and treatment of fractures of 333  
Fertility Non specific antigenic effect of permatozoa up on 120  
Fetus Effect of brain pressure on heart sounds of during labor 21 participation of in elevation of basal metabolism during pregnancy 486  
Fibula Treatment of imperfectly consolidated bimalleolar fractures 498  
Finger Trigger and stenosing tendovaginitis of flexor tendons of 45 injuries of 49 tendon transplantations for division of extensor tendon of 136  
Flank Pyelography in diagnosis of tumors of 397  
Flat foot Treatment of by freezing of peroneal nerve 39  
Foot Dupuytren's contracture of plantar aponeurose 28 treatment of peripheral vascular disturbances of extremities 500  
Forceps Value of Kielland in obstetrics 13  
Forearm Skin plastics in traumatic lesions of 136, treatment of fractures of 331  
Fractures Leverage and levers in reduction of 138, pontaneous following bone banding for 230 *See also* names of bones  
From syndrome in diversified spinal lesions 71  
Frontal sinus Observations on 186 ethmoidal mucocoele with extensive invasion of orbit 367  
Fusion and some of its anomalies 181
- G**ALL BLADDER X ray diagnosis of diseases of 111 development of carcinoma in calculous cholecystitis 113 complete cholecystectomy versus cholecystectomy in empyema of 113 dilatation of common bile duct in absence of functioning 114 subphrenic abscess with vomited 10 evolution of early to late gall tract disease 210 diagnosis and treatment of gall tract disease 10 diagnosis of diseases of from standpoint of surgeon 210 diagnosis and treatment of early to late gall tract disease, 210 practical value of Craham-Cole method in diagnosis of diseases of as compared with older method 210 perforation of cancer of into peritoneal cavity treated by cholecystectomy and secondary cholecystectomy 1 types of mild cholecystitis termed "strawberry" 301 medical aspects of disease of 392 certain experiences with surgery of 393 filling and emptying of 476, cholecystoduodenostomy 477  
Gall stones Cholelithiasis with chronic salpingo oophoritis and adherent abdominal scars 211 exposure of common duct in operation for recurrence of after cholecystectomy 212 prevention of 95, clinical and pathological study of cholecystitis and cholelithiasis 476  
Gamma rays Biological effects of 143  
Ganglia What is known regarding 44  
Gangrene Value of insulin in treatment of diabetic 508  
Gasserian ganglion Partial neurectomy of sensory root of in trifacial neuralgia with preservation of corneal sensation 9 tumor of 71, isolated palsy associated with irritation of 375  
Gastrectomy Indications prophylaxis and technique of partial 19 effects of subtotal on secretion 19 method of partial with telescopic anastomosis 19 indications and technique of 103 gastric ulcer associated with chronic duodenal ileus treated by partial 282  
Gastritis Diffuse acute phlegmonous streptococcus diagnosed during life and cured with hourglass stomach 20 additional roentgen ray signs of chronic 80  
Gastro enterostomy Surgery of gastroduodenal fistula following 18 duodenal tube in postoperative treatment of 20 peptic ulcer of jejunum after 89 relations between infectious state of gastric wall and certain troubles following 387  
Gastro intestinal tract Roentgen manifestations of infection of 103, relation of chlorides of body to disease of 385 diverticula of 468  
Gaucher's disease with bone and joint involvement, 43  
Gentian violet Intravenous administration of in sepsis 40  
Glands of internal secretion *See* Endocrine glands  
Glaucoma Operations for 8, improved technique for iridectomy for 181  
Glossopharyngeal neuralgia Surgical relief of 10  
Glucose in toxemias of pregnancy 404  
Glycerine Treatment of puerperal infection by intrauterine injections of 33  
Goiter Substernal thyroid 6 clinical aspects of simple, 6 cause of simple 6 prognosis in, 6 influence of exophthalmic on gastric secretion 6 effect of two preparations of iodine on pre operative basal metabolic rate in exophthalmic 7 total thyroidectomy in thyrotoxicosis of exophthalmic type 7 existence of so called benign metastasizing 93, clinical aspects and histology of struma and their relationship to one another on basis of struma material in Goettingen 188 conjugal and luetic Basedow's disease 189 anterior mediastinotomy for struma intrathorax 189 exophthalmic and tuberculosis 189 diagnosis and medical treatment of, 66 radiation in 66 surgical treatment of 66 369 iodized salt in prevention of 267 indications for surgical treatment of 267, exophthalmic 267, follow up of cases of exophthalmic treated with roentgen ray, 267 X ray treatment of Graves disease 268 surgical treatment of Graves disease 268 treatment of Graves disease by ligation 268 surgical treatment of exophthalmic 268 general management of exophthalmic, 268 thyroid gland in relation to toxic 368 follow up of patients operated upon for Basedow's disease 369 genesis of intralaryngeotracheal struma 449 exophthalmic in children 450 elimination of iodine in urine in 450 system of control and treatment in toxic 451 value of iodine in surgical treatment of exophthalmic 451

necessity for postoperative examinations in toxic 452  
*See also* Thyroid  
 Gonococcus New medium for culture of 60  
 Gonorrhea Gonococcal endocervicitis 6 Horteloup's resection of perineum for complicated trichurias in 22 treatment of pelvic infections 307 pelvic inflammation in women 390 use of milk injections in pelvic inflammation 99 thermotherapy in treatment of pelvic inflammation 399 use of heat and cold in urethritis 412 Graafian follicle Fate of in human ovary 27  
 Graves disease *See* Goiter  
 Gynecology Virulence test in 401

**HÆMATURIA** Carcinoma with 24 diagnosis and treatment of 414

Hæmophilia Roentgen ray examination of joints of hæmophiliacs 43 in course of lithiax icterus 139

Hand Injuries of 49 skin plastics in traumatic lesions of 136 Dupuytren's contracture of palmar aponeuroses 2 8 dissection of 418 congenital contracture of palm 405 treatment of peripheral vascular disturbances of extremities 500

Hearing End results of radical mastoid operation with reference to 4 new method for testing 91 influence of partial and complete occlusion of external auditory canal on air and bone transmitted sound 61 new methods and apparatus for testing 6 *See also* Deafness

Heart Importance of thyroid in relation to certain varieties of disease of 95 histopathological changes in muscle of following sympathectomy 100 occurrence of brain pressure and its effect upon sounds of fetal heart, labor 2 1 1 time of function of in surgery 136 experimental and clinical investigations of functional condition of and blood vessels following extripation of cervicothoracic sympathetic chain 146

Heliotherapy in tuberculosis and a new instrument for its use 3

Hepatic ducts Bile duct

Hernia Congenital diaphragmatic 21 muscle and fascia suture with relation to repair of 104 experimental result in use of dead fascial graft for repair of 201 inter iliac 4

Hiccough Treatment of successfully by injections of novocain into phrenic nerve 15

Hip Acetabular lesion in osteochondritis of 4 operative reduction of old traumatic dislocation of 51 simple method for correction of deformity in bone ankylosis of 9 importance and treatment of flexion contracture of after poliomyelitis 3 9 treatment of old congenital dislocation of with reference to use of skeletal traction before reduction by periton 3 palliative treatment of old dislocation of 332 relation hip operation to fracture of neck of femur 333

Hodgkin disease Malignant lymphogranulomatosis 54 age distribution and location of lymphoblastoma 41, in man and animal 1 9 radiotherapy for lymphoblastoma 41, 50, 51 lymphoblastoma

Humerus Resection of lower end of for gun shot wound 136

Hydramia in certain postoperative syndromes 419

Hydronephrosis Arterial changes in prostatic rabbits with complete ureteral obstruction 36 pathogenesis and treatment of lithiopathy of 1 1 resulting from obliteration of ureter in gynecological practice 129 effect of ligation of main branch of renal artery on rate of development of 4 effect on development of simultaneous ligation of posterior branch of renal artery and ureter on same side 4 reactions following relief of 319 pontaneous rupture of 493

Hyoid Anatomical clinical and roentgenological study of normal and abnormal in man 95

Hyomandibular region Inclusion cysts of 187

Hyperemesis of pregnancy Pathological and chemical changes in 1 3

Hypernephroma Cases of 1 6

Hyperthyroidism in children 6 medical treatment of 189

Hypophysis Surgical management of pituitary lesions 9 glandular treatment of pituitary tumors and hypophysis 98 results in X ray treatment of early lesion of 98 efficacy of substance of posterior lobe of human 372 surgical treatment of tumors of 173

Hysterectomy Accidental section of ureter during for large fibroid in right broad ligament 2, oblique section of ureter in gynecological practice and resulting hydronephrosis 1 9 accidental section of ureter in for cancer 2 5 incidence of carcinoma in cervix following supravaginal 300 for rupture of uterus in case of face presentation 406 removal of cervix in for benign lesions 493

Hysteroscope Description of 118

**ICTERUS** *See* Jaundice

Ileocecal valve Insufficiency of 107

Ileosigmoidostomy Physiopathology of 110

Ileum Clinical significance of stenosis and its association with colitis 471

Ileus Hypertonic saline solution in adynamic 19 treatment of with choline 20, duodenal ulcer associated with chronic duodenal 282 gastric ulcer associated with chronic duodenal treated by partial gastrectomy 292 gastric and duodenal ulcer associated with chronic duodenal 282 duodenal with perforating duodenal ulcer 283 following caesarean section 491

Immunity Significance of specific organ to transplantation 340

Impetigo Epidemic of in newborn infants 125

Influenza Haemorrhagic types of ear disease occurring during epidemics of 364

Insanity Renal up 1 associated with manic depressive 37

Insulin Toxemia of pregnancy 494 value of in diabetic gangrene 508

Intestine Volvulus of small 289 diverticula of small other than Meckel's diverticulum 388

Intestines Effects of roentgen ray irradiation on secretions of 202 obstruction of 205 pathology and surgical treatment of obstruction of 207 practical management of types of acute obstruction of 288 origin of pernicious anemia in 335 *See also* Caecum intestinal tract parts of intestines and intestinal conditions and operations

Intussusception Chronic irreducible in twelve months infant treated by resection 97

Iodine Effect of different preparations of on preoperative basal metabolic rate in exophthalmic goiter 7 safety of iodized salt in prevention of goiter 267 elimination of in urine in normal patients and in exophthalmic goiter 450 value of in surgical treatment of exophthalmic goiter 451

Iodipin *See* Iodized oil

Iodized oil Value of contrast media in bronchi for demonstration of bronchiectases 15 visualization of hepato bronchial fistule by retrograde filling with iodized oil 15 present status of roentgenological examination with 57 roentgenological exploration of bronchial tubes with 101 investigation of bronchial affection by means of 102 investigations of bronchial affection with iodobromin 102 radiographic exploration of bronchopulmonary system by means of 19 in diagnosis of tumor of spinal cord at level of fifth and

- 11th cervical segments 24 in diagnosis of bronchopulmonary lesions by bronchoscopic method 17 results of roentgen diagnosis of diseases of spine and spinal cord with iodipin injections 315 in otolaryngological diagnosis 447, opaque injection study of maxillary sinuses 447 effect of on meningitis 455 use of in localization of spinal lesions 456 local and systemic effects of injection of into subarachnoid space 456 roentgenography and therapy with iodized oils 494
- Iodothyroglobulin Effect of on diuresis and metabolism 121
- Iridectomy Improved technique for for glaucoma 151
- J** **JAUNDICE** Clinical application of recent studies on 11 marked hæmophilia in lithia icterus 139
- Jaw Fractures of mandible 151 inclusion cysts of hyo-mandibular region 181, asymmetry of mandible from unilateral hypertrophy 36 total necrosis of mandible due to acute infectious osteomyelitis 362
- Jejunostomy Effect of in experimental obstruction of jejunum of dog 208
- Jejunum Parenteral injection of albumin in ulcer of 64 radical operation for postoperative peptic ulcer of with resection of colon 68 effect of jejunotomy in experimental obstruction of, of dog 208 peptic ulcer of after gastro-entrostomy 289 infectious state of gastric wall and gastrojejunal peptic ulcer 357
- Jodumbrin See Iodized oil
- Joints Gaucher's disease with involvement of 3 recent gen ray examination of of hæmophilics 43 experimental studies on free bodies in 43 pathology of tuberculosis of in earlier stages 44 possibility of osteochondritic joint mouse to become rehealed into place 44 prevention of deformity 48 disinfection of septic, 136 See also names of joints and joint conditions
- K** **KIDNEY** Simultaneous cholecystography and tests of hepatic and renal functions by sodium phenoltetraiodophthalein 2 differential diagnosis between of pregnancy and chronic nephritis 30 treatment of traumatic rupture of 35 pyelography in renal diagnosis 35 fate of phenolsulphonephthalein in normal renal pelvis with ureter tied 36 pyelovenous backflow 37 polycystic disease of 37 sepsis of associated with manic depressive insanity 37 tuberculosis of 38 diagnosis and differential diagnosis of stone in and ureter 39 conservatism in surgery of urinary tract 41 bacteriological studies of perirenal suppuration 126, conservative operation for serous cysts of 16 deaths from nephrectomy for tuberculosis based on constant 12, vitiation of results of nephrectomy for unilateral tuberculosis by tuberculous lesions outside 17 function of homogenous transplant 128 function of autogenous transplant 18 inner topography of 23 physiology of renal calyces and renal pelvis - 3 Pregl test of function of and Haberer's experiment with it 224 acute changes in rabbit's produced by ligating ureter 310 renal counterbalance 319 origin growth and spontaneous passage of calculi in 320 renal tuberculosis in child as compared with that in adult 320 interesting problems in surgery of 31 operative exploration of 31 value of phenolulphonephthalein test in renal and circulatory diseases 35 method of operation for floating 408 total infarction of from traumatic necrosis of vascular peduncle 408 passage of bacillus coli through with acute staphylococcal lesions 408 suture of renal pelvis after pyelolithotomy 409 carcinoma of 410 subcutaneous injuries of 403 anatomy of pelvis of 493 leucoplakia of 494 See also kidney conditions and operations and urinary tract
- Knee Tuberculous osteoarthritis of cured by bone grafting with patient remaining in bed only twenty five days 50 arthrotomy for calculi in 13, operative treatment of instability of following crucial ligament injury 330
- L** **LABOR** Preparation of external genitalia with iodine alcohol for delivery 31 difficulties in in so called partial retroflexion of uterus and their management in cases of advanced pregnancy 32 value of Kielland forceps in obstetrics 13 eclampsia during 14 occurrence of brain pressure and its effect upon fetal heart sounds during 21, Wassermann reaction in 313 mechanism of in brow presentations 314 need and possibility of giving students practical instruction in usual methods of controlling hæmorrhage in third stage of 316 examination of uterus during 31, defensive mechanism of parametrium during 403 statistical study of incidence and treatment of complicated by contracted pelvis in 6th clinical service of Johns Hopkins Hospital 406 rupture of uterus in case of face presentation 406 obstetrical shock 40, importance of outlet pelvimetry 40, treatment of cystic tumors of ovary at time of delivery 488 etiology of laceration of uterus with regard to pathologic anatomical conditions 490
- Larynx Development of membranous 18
- Lachrymal gland Neoplasms of 87
- Lachrymal sac Malignant tumors of 88
- Laminectomy Idiopathic incontinence of urine and 98 lumbosacral in retention and incontinence of urine due to spina bifida occulta 460
- Larynx Treatment of tuberculosis of with Goerz Wessely lamp 8 blastomycosis of 8 treatment of chronic stenosis of 96 cancer of in woman 9, newer method of X ray examination of 18, effects on of artificial pneumothorax in treatment of pulmonary tuberculosis 108 dislocation of and trachea in extirpation of tumors of cervical portion of oesophagus 109 resection of superior laryngeal nerve in tuberculosis of 69 tuberculosis of treated with galvanocautery 30 enchondromata of 30 surgical diathermy in 31 carcinoma of 433 use of injected iodized oil in roentgen ray diagnosis of 462
- Lead Treatment of cancer with 234 339
- Leg Role of tensor fasciæ femoris in deformities of lower extremities 47 correction of deformities of lower extremities 48 cured case of fat embolism of brain following fracture of and imitating progressive paralysis 191, cutaneous carcinoma of lower extremities 234 significance of collateral pulse in diagnosis of injuries of large arterial trunks of extremities 334 treatment of imperfectly consolidated bimalleolar fractures 408 innervation of blood vessels of lower extremity 499
- Leggs disease See Osteochondritis deformans juvenilis
- Leshmaniasis Polyp of 363
- Leucocytes Changes in number of and leucocyte formula during postoperative period 50
- Ligaments Experimental production of annular as example of influence of function upon differentiation of connective tissue 45
- Liature Conduct and fate of made from parietal peritoneum of ox when implanted in living tissue 503
- Light Results of treatment by artificial on phlyctenular and other tuberculous lesions of eye 89 efficacy of various sources of in general treatment with 144

- value of concentrated ure in roentgen and radium lesions of skin 338 physiological and therapeutic effects of artificial 338 influence of chemical baths on bactericidal process in blood and serum 410 treatment with in surgical tuberculosis 423
- Lap. Cavernous haemangioma of upper 362
- Lipiodol See Iodized oil
- Liver Visualization of hepatobronchial fistulae by retrograde filling with iodized oil 15 technique of function of 7 detoxication by 21 simultaneous cholecystography and test of hepatic and renal functions by sodium phenotetraiodophthalate 22 pylophlebitis and abscess of following appendicitis 109 present status of functional test of 111 X-ray diagnosis of diseases of 111 primary pyopneumocyst of 112 cytoplasmic role of 109 comparative study of functional test of 109 comparative study of five methods of testing function of 10 hydatid cyst of opening into bile passages and causing formation of choledochocutaneous biliary fistula 204 primary carcinoma of 94 function test of with tetrachlorophenolphthalate in toxæmia of pregnancy 310 excretion of phenolphthalein in disease of 325
- Lumbar puncture Diagnostic importance of in subarachnoid block 10 in meningococcus meningitis 374
- Lung Isthmic evulsion as aid in treatment of pulmonary tuberculosis and bronchiectasis 11 radical phrenicotomy for tuberculosis 11 suppurative disease of due to in pirated foreign body contrasted with those of other etiology 15 pulmonary tuberculosis and pregnancy 940 exertion of phrenic nerve in pulmonary affections 154 bronchoscopic aids in thoracic surgery 10 radiographic exploration of bronchio-pulmonary system by means of lipiodol 157 care of bronchial stump following amputation of 104 effects on larynx of artificial pneumothorax in treatment of pulmonary tuberculosis 1105 diagnosis and treatment of metastatic tumors in chest 100 pulmonary complication in gastric surgery treated by autohaemotherapy 25 lipiodol in diagnosis of bronchopulmonary lesions by bronchoscopic method 2 morphological changes associated with partial occlusion of pulmonary veins of one 2 roentgen ray diagnosis of abscess of 382 abscess of from mediastinal standpoint 38 surgical aspect of abscess of 382 bronchoscopic treatment of abscess of 38 preventive vaccination against pulmonary complication in operations on stomach 386 use of injected iodized oil in roentgen ray diagnosis of bronchopulmonary conditions 462 surgical treatment of abscess of 462 abscess of 462 postoperative abscess of 464 liberation of pleural band under pleurocopic control during treatment of tuberculosis by artificial pneumothorax 463 simple and combined ligature of pulmonary vessels 464 pulmonary complication in filling ether and ethylene ether anaesthesia 506
- Lymph glands Treatment of tuberculous lymphadenitis by cinnamon benzyl ether 110
- Lymph vessels Prothylations of in uterine musculature 208
- Lymphatic Lymphatic drainage 53
- Lymphoblastoma 508 age incidence and duration of 417 effect of roentgen ray radium irradiation and surgery on 417 gastric metastasis if with reference to roentgen findings 417 radiotherapy for 509
- Lymphogranulomatosis See Hodgkin's disease
- MAGNESIUM SULPHATE Intravenous administration of in pre-eclampsia and eclampsia 48
- Malignancy See Can- and names of organs
- Mandible See Jaw
- Mastoid Separation of with intact tympanic membrane 10
- Mastoidectomy End results of radical mastoid operation with reference to hearing 4 skin perosteal flap for radical mastoid 165
- Mastoiditis Dehiscence in which middle ear was not affected 365
- Maxilla See Jaw
- Maxillary sinus Infection of 91 hyperplastic inflammation of 91 malignant neoplasms of antrum of maxillary sinus 184 opaque injection study of 44
- Meckel's diverticulum Epileptic ulcer of 106 107
- Mediastinotomy Anterior for struma intrathorax 189
- Mediastinotomy Median sternotomy as palliative decompressive treatment for tumors of 384
- Megacæcum Imperforate anus with associated 111
- Melena neonatorum Etiology and healing process of dental ulcer in 117
- Menstrues Spontaneous meningeal hemorrhage 373 effect of lipiodol on 455
- Meningioma Invasion of intracranial sinuses by 9
- Meningitis Cystic purulent cerebrospinal following lumbar anaesthesia induced with novocain 66 chemotherapy and serum therapy of pneumococcus and streptococcus 374 advanced meningococcus treated by combined ventricular external and lumbar punctures 374
- Menopause Changes in internal secretion in normal 14 carcinoma of ovary and bleeding after 306
- Mercurochrome 220 Intravenous administration of in treatment of sepsis 420
- Mercury Noma with perforation of cheek after injections of 443
- Mesentery Role of in visceral disorders 17 mobilization of root of 202 arterio-mesenteric occlusion of duodenum 389 mesenteric lymphadenitis 468
- Metabolism Effect of two preparations of iodine on preoperative basal metabolic rate in exophthalmic goiter 7 basal toxæmia of pregnancy 31 relation of cholesterolæmia and calcæmia in thyroid conditions to basal 95 changes in basal caused by splenectomy 117 effect of iodothyroglobulin on pregnancy 111 clinical use of test in thyroid toxicity 207 participation of fetus and thyroid in elevation of basal during pregnancy 486
- Meyer-Schlueter sound Construction and use of 191
- Midwifery Plea for reform in teaching of 405
- Milk Use of injectors of in pelvic inflammation 399
- Mouth Cure therapy of epidermoid carcinoma of intraoral group as carried out at Radium Institute Paris 262 radium emanation in treatment of cancer of tongue and other parts of oral cavity 62 treatment of intraoral carcinoma by contact application of radium 262 treatment of buccal carcinoma 54
- Muscle Pelation of sympathetic nervous system to torso of skeletal 99 surgery in hernia repair 204
- Myositis ossificans progressiva 17
- NECK Hemorrhagic cysts of 94
- Nephrectomy Deaths from for tuberculosis 12 indication of results of for unilateral tuberculosis by tuberculous lesions outside kidneys 117 clinical study of 322
- Nephritis Differential diagnosis between kidney of pregnancy and chronic in pregnancy 30 clinical study of in pregnancy 30 indication of toxæmia of latter half of pregnancy 404
- Nephrotomy Indication of preliminary to ureterocolicostomy 39

- Nephrotomy without sutures in dogs with single kidneys 494  
Nephro ureterectomy for imperforate supernumerary ureter, 410
- Nerve Operative correction of facial palsy 1 radical operation on phrenic for tuberculosis 11 evulsion of phrenic, as aid in treatment of pulmonary tuberculosis and bronchiectasis, 11, injury of phrenic in newborn 34 exeresis of phrenic, in pulmonary affections 194, clinical lessons from operations on phrenic 193, condition of vagus in gastric and duodenal ulcer 93, persistent hiccough treated successfully by injections of novocain into phrenic 215 coloboma of optic, 261 resection of superior laryngeal in tuberculosis of larynx, 269, treatment of flat foot by freezing of peroneal 329 neuralgia of trifacial of seven years duration relieved by simple intrabuccal resection of 3 cm of left lingual, 374 otogenic paralysis of abducens 375, phrenicectomy 376 results of hypoglossic facial anastomosis for facial paralysis, 455
- Nerves Tumors arising from neuroblasts 196 restoration of innervation in skin transplants, 196, innervation of blood vessels of lower extremity 499
- Neuralgia Partial neurectomy of sensory root of gas. erian ganglion in trifacial with preservation of corneal sensation 9 radical treatment of trigeminal 10 surgical relief of glossopharyngeal 10 of trifacial nerve of seven years' duration relieved by simple intrabuccal resection of 3 cm of left lingual nerve 374
- Newborn Phrenic nerve injury in 34, epidemic of impetigo in, 125 etiology and healing process of duodenal ulcer in melanoma neonatorum, 317
- Noma with perforation of cheek after mercury injection 445
- Nose Normal bacterial flora of, with variations during colds 4 combined operative and irradiation treatment of cancer of and accessory sinuses 92 pathogenesis of polyps of septum 365 radium in treatment of tumors of nasopharynx, 366, surgical diathermy in laryngology 371
- Novocain Cystic, purulent cerebrospinal meningitis following lumbar anesthesia induced with 46 albumin as substitute for, for local anesthesia in intracranial operations 192 effect of paravertebral injections in angina pectoris 195, persistent hiccough treated successfully by injections of, into phrenic nerve 15
- Stagnus Use of terms first, second and third degree 259
- OBSTETRICS** Virulence test in 491  
Esophagoscopy for disease 381
- Esophagus Obstruction of, by calcified intrathoracic gland, 16 surgical treatment of unusually large diverticulum of adherent to pleura 199 cicatricial stenosis of 199 dislocation of larynx and trachea in ectopia of tumors of cervical portion of 199 mechanism and value of artificial 278 diverticula of 466 complete reconstruction of by method of Roux 467 cardiospasm treated by digital division 469
- Operation Bacteria in blood after, 33 medical aspects of surgical convalescence 418 postoperative treatment 418 hydramia in certain postoperative syndromes 419 postoperative pulmonary abscess 463 changes in blood pressure under influence of 499 effect of on changes in coagulability of blood 501 changes in catalase index of blood after 501 changes in viscosity of blood under influence of anesthesia and 501 effect of and narcosis on calcium content of blood 501 changes in number of the erythrocytes and blood platelets during postoperative period 502 changes in number of leucocytes and leucocyte formula during postoperative period 502
- Ophthalmitis Phaco anaphylactic 89  
Optic canal Newer methods of X ray examination of 183  
Orbit, Ethmoidal mucocoele with invasion of 367  
Orthopedics Observations of medical man in orthopedic clinic 43  
Os calcis See Calcaneum  
Osteitis deformans 327  
Osteochondritis deformans juvenilis Acetabular lesions in 47, theory as to cause of Perthes disease based on roentgenological findings, 135 clinical observations after healing of Calvé Perthes disease compared with final deformities and bearing of final deformities on ultimate prognosis 136  
Osteomyelitis Non suppurative 133  
Otitis media Prognosis of middle ear suppuration in children, 4  
Ovarianectomy for slow and progressive torsion of mucoid cyst of ovary in fourth month of pregnancy 122  
Ovary Adenomyomata of 5 fate of graafian follicle in human 27 intraperitoneal hemorrhage from rupture of follicular cyst of 27 rupture of corpus luteum cyst simulating rupture of ectopic pregnancy 27 cyst of twisted on its pedicle with carcinoma of sigmoid discovered incidentally 8 slow and progressive torsion of mucoid cyst of in fourth month of pregnancy, 1 sudden torsion of dermoid cyst of involving tube during pregnancy 12, changes in internal secretion after operative castration and roentgen castration and in normal chlamyterium 147 cholelithiasis and chronic salpingo oophoritis with adherent abdominal scars 211 ovarian graft and its application to treatment in clinical cases 17 cyst of free in peritoneal cavity of three months old infant 218 Krukenberg tumors of 18 pregnancy in following operation for tubal pregnancy on same side 20 development technique use and results of temporary sterilization by roentgen rays 304 incidence and end results of carcinoma of 303 production of sexual cycle development of sexual characteristics and reactivation of senile female organism by extract of and placenta 303 temporary sterilization of women by roentgen ray irradiation 305 postlactation bleeding and carcinoma of 306, histological changes in thyroid in animals injected with extract of corpus luteum 449 clinical tests of follicular hormone of 484 treatment of cystic tumors of during pregnancy and at time of delivery 488
- PACET'S** disease of bone See Osteitis deformans  
Pain In shoulder and arm in rupture of pancreas and spleen 213 visceral and referred 393  
Palate Closure of congenital clefts of hard 368  
Palm Congenital contracture of 496  
Palp Operative correction of facial 11 related associated with irritation of gasserian ganglion 375  
Pancreas Study of external insufficiency of as indicated by enzymes in duodenal juice removed with sound 114 roentgen diagnosis of cystic tumors of head of 115 resection implantation of duodenum into in carcinoma of stomach 203, disease of 213 rupture of and spleen cured by operation 213 implantation into stomach of pancreatic fistula following cyst, 214 causes of external secretion of and mechanisms concerned 96 ruptures of in abdominal injuries 394 accessory 394  
Pancreatitis Pathological physiology of experimental gangrenous 213 urgent surgery of abdomen 297 associated with cholecystitis 478  
Papilloedema Choked disk and vitreous opacities following fracture of skull 3 influence of decompression operations on experimentally produced, 191



- Parametrium Defenive mechanism of during pregnancy and labor 403
- Parathyroid glands Diagnostic criteria of chronic insufficiency of secretion of and their importance for organism 96 transplantation of in partial thyroidectomy 190 transplantation of human by method of Voronoff in chronic tetany in adults 45
- Pelvicmetry Importance of outlet 407
- Pelviotomy 315
- Pelvis Treatment of infections of 301 inflammation in women 399 use of milk injections in inflammation in 399 thermotherapy in treatment of inflammation in 399 statistical study of incidence and treatment of labor complicated by contracted in obstetrical service of John Hopkins Hospital 406
- Periarterial sympathectomy See Sympathectomy
- Pericarditis Treatment of obliterative and precordial thoracotomy 466
- Perineum Horseloup's resection of for complicated gonorrheal structures 227
- Periosteum Importance of in origin and treatment of pseudarthrosis 228
- Peritonitis Healing of wounds of 468 experiments on conduct and fate of ligature made from parietal of ov when implanted in living tissue 505
- Peritonitis Lymphatic drainage in treatment of acute 201 effect of anti serum against coli soluble toxic substance of bacilli in bacilli coli 201 roentgenographic shadows upon time calculi in tuberculous peritonitis after puncture of common duct 212 renten diagnosis of 219 free gas in abdominal cavity of
- Pertussis Osteochondritis deformans juvenilis
- Pharynx Normal bacterial flora of with variations during cold 4 urinary malignant disease of 5 surgical relief of pharyngeal neoplasms 10 chordoma of cervical vertebrae with involvement of 134 newer method of X-ray examination of 185 complications of acute inflammations of throat with special reference to parapharyngeal space 26 radium in treatment of tumors of nasopharynx 106 radical cure of peritonitis 365 urinary diathermy in laryngology 371 septum nasopharyngeal space 449
- Phenylthiocarbamide Fate of in normal renal pelvis with ureter 123 excretion of by kidneys 325 excretion of in circulatory and liver disease 325 value of test in renal and circulatory disease 325 fate of in organism 35
- Phenoltetraiodophthalin for cholecystography 390
- Phlebitis Part played by regulability of blood in development of postoperative 409
- Phrenicotomy 376 exertion of phrenic nerve in pulmonary affection 194 clinical lesson from 100 operations on phrenic nerve 195
- Phrenicotomy Radical for tuberculosis 11
- Pituitary gland See Hypophysis
- Placenta Production of extraembryonic development of extra characteristics and reactivation of senile female organism by extract of ovary and 305 etiology of accidental hemorrhage and infarction of 403
- Placental previa Treatment of 32 488 cases of at living In Hospital in Karlruhe 488
- Pleura Possibility of preventing effusion of following thoracotomy by artificial pneumothorax 198 study of human and relation to kibbs and bulle of emphysema 198 separation of adhesion of in fourth year of inflation of artificial pneumothorax 380 liberation of bands in under pleurocopic control during treatment of tuberculo by artificial pneumothorax 463
- Pneumoencephalography Value and safety of simplified method of 271
- Pneumothorax Possibility of preventing effusions following thoracotomy by artificial 198 artificial in treatment of pulmonary tuberculo 198 effects of on larvae 198 separation of pleural adhesion in course of fourth year of inflation of artificial 380 liberation of pleural band under pleurocopic control during treatment of tuberculosis by artificial 463
- Poliomyelitis Importance and treatment of flexion contracture of hip after 330
- Pons varoli Glioma of 98
- Portal vein Successful suture of 232
- Pott's disease of spine
- Proctol test of kidney function 24
- Pregnancy Rupture of corpus luteum cyst imulating rupture of ectopic 27 use of vaginal stethoscope in early diagnosis of 29 pulmonary tuberculo and 29 differential diagnosis between kidney of and chronic nephritis in 30 clinical study of nephritis in 30 necrosis of corpus luteum of 30 bacterial metabolism in toxemias of 31 interagglutination of maternal and fetal blood in late toxemia of 31 difficulties in labor in 30 called partial retroflexion of uterus and their management in advanced 32 appendicitis in 108 obstetrical results of shortening round ligaments 118 incompatibility of and fibrin of uterus 119 spontaneous rupture of uterus during 121 effect of iodolthyroglobulin on ducts and metabolism in 121 sudden torsion of dermoid cyst of ovary involving tube during 122 complicated by fibroid 122 slow torsion of mucoid cyst of ovary in fourth month of 122 pathological and chemical changes in hyperemia of 13 ovarian following operation for tubal on same side 20 with retention of mature fetus of previous 20 cancer of cervix and treated by caesarean section 1000 amputation and radical therapy 20 cancer of cervix and treated by hysterectomy 221 results of antenatal supervision 300 calcium metabolism in 309 liver function test with tetraethylphenolphthalein in toxemia of 310 increase in quantity of blood during 310 products during 311 bacterial content of uterine cavity during 312 Wassermann reaction in 313 disease of and 305 uterine contents at end of and its prognostic significance as regards morbidity during puerperium 317 pulmonary tuberculo is complicated by 402 relationship between and tuberculo 402 etiology of chorea gravidarum 402 defensive mechanism of parametrium during 402 etiology of accidental hemorrhage and placental infarction 403 revised conception of antepartum accidental hemorrhage 403 clinical indication of toxemias of latter half of 403 glucose and urea in toxemias of 404 caesarean section in twin 407 importance of outlet pelvicmetry 407 408 time after caesarean section 486 age and primiparity 486 participation of fetus and the role in elevation of basal metabolism during 486 toxemias of 487 percent toxemia of 487 toxemia of with convulsions at New York Living In Hospital 487 treatment of cystic tumor of ovary during 488 extrauterine with perforation of bladder 489 490 combined intrauterine and extrauterine 490 pathogenesis of putrefactive changes 491
- Prostate Prostatic obstruction 40 diagnosis and treatment of hypertrophy of 324 suprapubic prostatic tomus for hypertrophy of 113
- Prostatectomy Hemostasis in suprapubic 41 epidural anesthesia for perineal 131 operation for incontinence of urine following perineal 131 pyelonephritis

- after, 131, observations bearing upon, 3 prostatic and 324 indications technique, and results of Frey's 413 suprapubic 413
- Prostatism and prostatectomy 324
- Protein therapy Parenteral injection of albumin in gastric duodenal and jejunal ulcers 204 influence of on experimental staphylococcal infection of rabbit's cornea 363 use of milk injections in pelvic inflammation 399
- Pseudarthrosis Importance of periosteum in origin and treatment of 2 8
- Psychose Pathogenesis of puerperal 401
- Pubic bone Puerperal streptococcal septicæmia with sequestrating osteitis of right 2 2
- Pubiomy Defects and dangers of 491
- Puerperium Treatment of infection in by intra uterine injection of glycerine 31 laboratory investigations in connection with fever in 33 review of deaths in 124 treatment of infection in 124 streptococcal septicæmia with sequestrating osteitis of right pubic bone 222 rectal and vaginal examinations and prophylaxis of infections in 2 2 new procedure for treatment of severe infection in 222 appendicitis during 311 Wassermann reaction in 313 prophylactic immunization against streptococcus septicæmia in 31, degree of cleanliness of vaginal contents at end of pregnancy and its prognostic significance as regards morbidity during 31, influence of vaginal and uterine examinations on 317 importance of spleen in resistance to infection as indicated by severe sepsis in woman recently splenectomized 394 etiology of chorea gravidarum 402 pathogenesis of psychoses of 491 rôle of anaerobic streptococci in infection in 49
- Pulse Significance of collateral in diagnosis of injuries of large arterial trunks of extremities 334
- Pupil Relation of aperture of eye to ocular function 259 globular masses on margin of in acute circumscribed choroiditis 260
- Purpura Splenectomy in thrombocytopenic hæmorrhagic 115 splenectomy for hæmorrhagic 214
- Pyelography In renal diagnosis, 35 diagnosis by 36 consequences of in carcinoma 224 in diagnosis of tumors of the flank 397 variations in normal pyelograms 409 interpretation of pyelographic shadow, 409 fluoroscope as aid to 493
- Pyelolithotomy Suture of renal pelvis after, 409
- Pyelonephritis after prostatectomy, 131
- Pyelovenous back flow 37, fate of uretersulphonephthalamine in normal renal pelvis with ureteral shift 36
- Pylephlebitis and liver abscess following appendicitis 109
- RADIUM**, Treatment of carcinoma of cervix by irradiation 6 combined operative and irradiation treatment of cancer of nose and accessory sinuses 9 use of in malignant diseases of paranasal sinuses 93 carcinoma of tongue 94 in management of breast carcinoma 101 new development in treatment with 143 in cancer of tongue and secondary involvement of lymph nodes 186 histological investigation of cancer of cervix of uterus cured locally by treatment with and X rays 216 treatment of squamous cell epithelioma of cervix 216 carcinoma of cervix treated exclusively by irradiation 217 treatment of carcinoma uteri with 217 treatment with in cancer of cervix and pregnancy 20 Cune therapy of epidermoid carcinoma of intra oral group as carried out at Kadium Institute Paris 6 results obtained in cancer of tongue treated with and roentgen rays 262 treatment of intra oral carcinoma by contact application of 262 in treatment of buccal carcinoma 264 cancer of breast from viewpoint of radiologist 75, cancer of female breast and radiation therapy 75, proper co-ordination between surgery, radium and X ray therapy in cancer of breast 15, irradiation of myoma uteri 99 results in myoma uteri treated with 209 surgery, roentgen rays and in treatment of carcinoma of cervix 301, results of irradiation of cancer of uterus 302 protracted irradiation of carcinoma of uterine cervix with 303 value of concentrated arc light treatment in lesions of skin due to 338 in treatment of tumors of nasopharynx 366 cancer of cervix treated with at distance 399 effect and risks of treatment with of benign gynecological complaints 401 effect of on lymphoblastoma 417 modern tendencies in treatment of cancer 4 1 in carcinoma of rectum and sigmoid 476 carcinoma of cervix and fundus uteri treated by combinations of surgery, roentgen ray and 483 death following intra uterine application of 493 in treatment of cancer of uterus and vagina 483 in treatment of lymphoblastoma 508 509
- Radium emanation in treatment of cancer of tongue and other parts of oral cavity 26
- Radius Fractures of head and neck of 230 treatment of fractures of forearm 331
- Radon seeds Use of removable in carcinoma of tongue 64
- Ramification Section of rami communicantes arising from stellate ganglion 73 anatomy of sympathetic nervous system with reference to 451
- Raynaud's disease Sympathectomy in 460
- Rectocele Operative treatment of 19
- Rectum Indication for nephrostomy preliminary to ureteroneostomy 39 field of application of primary and secondary drawing through procedure following resection of cancer of by sacral route 110 empalment wounds of 111 late results following, abdomino-perineal excision of cancer of 9 operation for complete prolapse of 92 end results of resection of carcinoma of 93 simple bloodless operation for prolapse of in children 475 complications of excision of 476 results of treatment by radiation in carcinoma of 476, lesions of following gynecological laparotomies 485 See also Colon Gastro intestinal tract
- Renal artery Effect of ligation of one branch on rate of development of hydronephrosis 24
- Respiration Effects of partial tracheal obstruction on morphinized dogs 461
- Retina Some essentials of gloma of 4 epileptic focus in of apparently healthy boy 260
- Roentgen ray Effect of cathode rays on bacteria *in vitro* and in fresh wounds 337
- Roentgen ray diagnosis Value of contrast media in bronchi for demonstration of bronchiectases 15 visualization of hepatobronchial fistulæ by retrograde filling with iodized oil 15 of syphilis of stomach 11, of peptic ulcer 18 cholecystography 27 390 cholecystography by oral method simultaneous cholecystography and tests of hepatic and renal functions by sodium phenoltetraiodophthalein 2 unusual bile duct visualization by roentgenograms of barium meal 3, cystogram study of cystocele and prolapsus 25 by pyelography 33 36 of joints of hamphiliacs 43 development of spinal vertebrae seen on skiagrams from late fetal life to age of fourteen 46 possible source of error in normal vertebral column 46 present status of with hipiodol 57 roentgenological exploration of bronchial tubes with iodized oil 101 10, 197 211, reliability of gastric niche in of ulcer of stomach 104 of gastro intestinal infection 105, of diseases of liver and gall bladder 111 of cystic tumors of head of pancreas 115 rupture of bladder during cystostomy

- diography 129 absence of shadow in roentgenography for vesical calculi 130 cause of Perthes disease based on roentgenological findings 135 newer methods of X ray examination of paranasal sinuses optic canals pharynx and larynx 185 roentgenographic shadow suggesting calculi in tuberculous pelvipertontitis 201 of gall bladder diseases from standpoint of surgeon 210 clinical study of cholecystitis with aid of cholecystography 210 practical value of Graham Cole method in diagnosis of gall bladder disease as compared with older method 210 in case of carcinoma with hematoma showing consequence of pyelography 224 value and safety of simplified method of pneumo encephalomyelography 71 of tumor of spinal cord at level of fifth and sixth cervical segments 272 of abdominal effusion 279 of peritonitis 279 of chronic gastritis 280 of pedunculated growths and gastric mucosa prolapsing through pylorus 81 of pastric and duodenal ulcer associated with chronic duodenal ulcer 282 of free gas in abdominal cavity 295 stereoroentgenography as method of exploring cranial sinuses 306 results of diseases of pine and pineal cord with iodipin injections 375 of non-opaque foreign bodies in air passages 380 of lung abscess 382 X ray visualization of duodenum by introduction of opaque fluid through Einhorn tube 389 cholecystography in operative cases 390 pyelography in diagnosis of tumors of flank 397 variations in normal pyelograms 409 interpretation of pyelographic shadow 409 of shadows in urinary tract 409 iodized oil (lipiodol) in otolaryngological diagnosis 44 with opaque injection in conditions of maxillary sinus 44 effect of lipiodol on meninges 455 use of lipiodol in localization of spinal lesions 456 use of injected iodized oil in of laryngeal tracheal and bronchopulmonary condition 467 of gastric manifestations in lymphoblastoma 43 roentgenological findings in ulcerative colitis 474 fluoroscope as aid to making pyelograms 493 with iodized oil 494
- Iodogenic ray treatment In carcinoma of cervix 26 action of on regeneration of blood 3 combined with operation in cancer of nose and accessory sinuses 92 in malignant diseases of paranasal sinuses 93 of carcinoma of tongue 94 results of in early pituitary lesions 98 of breast carcinoma 101 biological effects of 143 in ungual tuberculosis 143 changes in internal secretion after roentgen castration 144 effects of on gastric and intestinal secretions 202 histological investigation of cancer of cervix of uterus cured locally by radium and 216 carcinoma of cervix treated exclusively by irradiation 217 treatment of deep burns due to by excision and tissue shifting 233 results obtained in cancer of tongue subjected to 262 of buccal carcinoma 64 of thyroid 266 follow up of cases of exophthalmic goiter subjected to 61 of Graves disease 268 in cancer of female breast 5 cancer of breast from viewpoint of radiologist 25 proper coordination between surgery radium and in cancer of breast 275 fibromyomata of uterus treated by surgical operation or intensive 299 surgery radium and in carcinoma of cervix 301 results of irradiation of cancer of uterus 302 development technique used and results of temporary sterilization by 304 temporary sterilization of women by 305 effect of cathode rays on bacteria *in vitro* and fresh wounds 337 value of concentrated arc light in lesions of skin due to 338 relative value of various techniques in of carcinoma of breast 378 modern tendencies in treatment of cancer 421 of surgical tuberculosis 423 X ray and metastasis in breast cancer 462 results of in carcinoma of rectum and sigmoid 476 of myomata and hemorrhagic metropathies 481 of cancer of uterus and vagina at University Gynecological Clinic Berlin 43 combinations of surgery radium and in carcinoma of cervix and fundus uteri 483 practical considerations in application of deep in malignant disease 509 of sarcoma 507 of lymphoblastoma 417 508 509
- Round ligaments Obstetrical results of shortening 118
- SACCUS** endolymphaticus Experiments on in rabbit 364
- Sacro-iliac joint Result of arthrodesis of for arthritis 40
- Salpingo oophoritis with cholelithiasis and adherent abdominal scars 11
- Salpingostomy Sterility treated by 304
- Salt solution Hypertonic in adynamic ileus 19 hypertonic sodium-chloride solution intravenously in treatment of extensive superficial burns 141
- Sarcoma Retroperitoneal with hemorrhage 24 irradiation treatment of 507
- Scalp Surgical removal and pathological study of squamous-cell epithelioma associated with angioma of 362
- Scoliosis Alternating 497
- Semilunar cartilages Cysts of 2 8
- Seminal vesicles Roentgenography and therapy with iodized oils 494
- Septicemia Treatment of puerperal infection by intra uterine injection of glycerine 33 laboratory investigations in connection with puerperal fever 33 dental sepsis and 93 review of puerperal deaths 124 treatment of puerperal infection 124 puerperal streptococcal with sequestrating osteitis of right pubic bone 222 rectal and vaginal examinations and prophylaxis of puerperal infections 222 new procedure for treatment of severe puerperal infection 222 prophylactic immunization against puerperal streptococcus 317 importance of spleen in resistance to infection as indicated by severe puerperal sepsis in woman recently splenectomized 394 intravenous administration of gentian violet and mercurochrome 220 soluble in treatment of 420 rôle of anaerobic streptococci in puerperal infection 492
- Shock Obstetrical 49, as related to sympathetic nervous system 457
- Shoulder Operative reduction of old traumatic dislocations of 51 pain in following operation for rupture of pancreas and spleen 13 habitual or recurrent dislocation of 229
- Sigmoid Ovarian cyst twisted on its pedicle with carcinoma of it covered incidentally 28 experimental study of phytopathology of ileosigmoidostomy 210 unperforate anus associated with megacolon 111 results of radiation in carcinoma of 40 See also Colon Gastro intestinal tract
- Sinus Development of sphenoidal 5 observations on frontal 186 unusual ethmoidal finding 63 ethmoidal mucocoele with extensive invasion of orbit 367
- Sinuses Invasion of intracranial by meningioma combined operative and irradiation treatment of cancer of nose and accessory sinuses of radium and X rays in treatment of malignant diseases of paranasal 93 diagnosis and treatment of infections of paranasal in infants and young children under ethylene anesthesia 185 newer methods of X ray examination of paranasal 185 stereoroentgenography as method of exploring cranial 366 suppuration in ethmoidal and sphenoidal with cavernous sinus thrombosis 447 See also Nose Sinusitis Surgical treatment of acute suppurative paranasal 448

- Skin, Plastics in traumatic lesions of 136 rational management of grafts of, 141 cancer of, 145 restoration of innervation in tran plantis of, 166 cutaneous carcinoma of lower extremities 34 method of obtaining greater relaxation with whole thickness grafts of 33, value of concentrated arc light treatment in roentgen and radium lesions of 338 healing of wounds of 510
- Skull Choked disk and vitreous opacities following fracture of 3 fracture of base of and ear nose and throat surgeon 361
- Sound Influence of partial and complete occlusion of external auditory canals on air and bone transmitted 61
- Spermatozoa Non specific antigenic effect of upon fertility 120
- Sphenoid sinus Development of 5 suppuration in with cavernous sinus thrombosis 447
- Sphenopalatine ganglion Operation for removal of, 19
- Spina bifida Value of surgical management in 330 lumbar sacral laminectomy in retention and incontinence of urine due to 460
- Spina ventosa 3 7
- Spinal cord Intramedullary tumor of simulating abdominal malignancy, 11, experiences with spinal intradural tumors 194, 1 iron syndrome in diversified spinal lesions 71 tumor of at level of fifth and sixth cervical segments accompanied by atrophy of small muscles of hands inversion of radial reflex and sensory disturbances due to compression 27- results of roentgen diagnosis of diseases of, with iodipin injections 375 healing, of aseptic wounds of 456
- Spine Development of spinal vertebrae as seen on skilograms from late fetal life to age of fourteen 46 possible source of error in X ray findings in normal vertebral column 46 correction of deformity of 48, chordoma of cervical vertebrae with involvement of pharynx 134 Pott's disease 135, plaster shells in tuberculosis and fracture of 137 exostoses of cervical vertebrae as cause of difficulty in swallowing 187 pathogenesis of cystic structures of spinal dura mater 193 From syndrome in diversified lesions of 271 results of roentgen diagnosis of diseases of and spinal cord with iodipin injections 375 racemose cysticercus in 456 use of lipiodol in localization of lesions of 456 local and systemic effects of injection of lipiodol into subarachnoid space 456
- Spleen Surgery and physiology of 117 rupture of pancreas and cured by operation 213 importance of in resistance to infection as indicated by evere puerperal sepsis in woman recently splenectomized 394
- Splenectomy, Splenic anaemia of young children treated by, 115 in thrombocytopenic purpura hemorrhagica 115, mortality and end results of 116 changes in blood picture and basal metabolism caused by 117 for purpura hemorrhagica 214, relation of change in blood picture following to blood forming function of spleen 479
- Splenomegaly Gaucher's disease with bone and joint involvement, 23
- Stenility Due to closure of tubes treated by salpingostomy 394 statistical and critical review of the results of treatment of in female 301
- Sterilization Development technique use and results of temporary by roentgen rays 304 temporary of women by roentgen ray irradiation 305 operative for matron of double vagina by transverse colporrhaphy for of female 307
- Sternotomy Median as palliative decompressive treatment for tumors of mediastinum 384
- Sternum Osteomyelitis of, 228
- Stomach, Influence of thyroid on secretion of 6 diagnosis of syphilis of 17 ulcer therapy as tried on niche ulcers, 17 roentgenological diagnosis of peptic ulcer 18 healing of ulcer of in man 18, surgery of gastrocolic fistula following gastro enterostomy 18 effects of subtotal gastrectomy on secretion of 19, reliability of gastric niche in diagnosis of ulcer of 104 rational surgical treatment of ulcer of 104 pathogenesis of ulcer of 1, 13 effects of roentgen ray irradiation on secretions of 0 multiple and recurring forms of ulcer of 203 conditions of vagus nerve in ulcer of, 03 parenteral injection of albumin in ulcer of 204 perforation of ulcers of 04 internal or surgical treatment of bleeding ulcer of 04, pre operative and postoperative care in operations on 03 resection implantation of duodenum into pancreas in carcinoma of 05 pulmonary complications in gastric surgery treated by autohemotherapy 05 results of surgical treatment of cancer of 05 choice of operative procedures for ulcer of 08 implantation into of pancreatic fistula following cyst 14 tetany as cause of gastric disturbances 280 acute pyloric obstruction in course of stenosis 80 additional roentgen ray signs of chronic gastritis 280 pathogenesis of peptic ulcer of 281 roentgen ray diagnosis of pedunculated growths and gastric mucosa prolapsing, through pylorus 81 pyloric stenosis from compression by two tuberculous glands 81 ulcer of a associated with chronic duodenal ileus 28 ulcer of associated with chronic duodenal ileus treated by partial gastrectomy 82 experimental studies on perforation of ulcers of 83 delay of healing by muscle destruction in chronic ulcer of 283 co operation in management of peptic ulcer 284 extirpation of magenstrasse in ulcer of 285, recurrences following extensive resection of for ulcer 85 technique of surgery of 86 acute cholecystitis following resection of 295 urgent surgery of abdomen 297 clinical study of hypertrophic congenital pyloric stenosis operated upon 385 preventive vaccination against pulmonary complications in operations on 386 rôle of infection in development of ulcers of 380 long, standing ulcer of 386 relations between infectious state of gastric wall and certain troubles following gastro enterostomy 387 changes in gastric chemistry after resection of 388 late result of biliary fistula with implantation of fistulous tract into 394 gastric hemorrhages of obscure origin 469 management of ulcer of 470 frequency number size shape location color sex and age in cases of ulcer of at Bellevue Hospital New York 470 surgical treatment of ulcer of with particular regard to operative anatomy and postoperative digestion physiology 471 surgical treatment of hemorrhage due to ulcer of 471 contra indications to surgery in ulcer of 471, operation for ulcers of on lesser curve 472 gastric manifestations of lymphoblastoma 473 See also Gastric conditions and operations Gastro-intestinal tract
- Streptococci Elective localization of 339
- Subarachnoid block Diagnostic importance of cisternal puncture and of simultaneous cisternal and lumbar puncture on diagnosis of 2,0
- Subarachnoid space Local and systemic effects of injection of lipiodol into 456
- Sympathectomy Penarterial, 12 458, effect of penarterial on circulation of blood 13 late results of periferic oral in treatment of varicose ulcer 09 relation of sympathetic nervous system to skeletal muscle tonus 09 histopathological changes in heart muscle following 100 experimental contribution on penarterial 195, functional condition of heart and blood vessels

- following extirpation of cervicothoracic sympathetic chain 375 experimental and clinical investigations of functional condition of heart and blood vessel following extirpation of cervicothoracic sympathetic chain 3,6 physiology of sympathetic nervous system in relation to certain surgical problems 458 anatomy of sympathetic nervous system with reference to 458 in aneurysm 458 bilateral extirpation of upper sympathetic ganglia and periaxillary on carotids in chronic and epidemic encephalitis with parkinsonian syndrome 459 in Raynaud's disease 460 in erythromelalgia 460 in vascular diseases of extremities 460 500
- Sympathetic nervous system Relation of to skeletal muscle tonus 99 relation of syncope collapse and shock to 45 physiology of in relation to certain surgical problems 458 anatomy of with reference to sympatheticotomy and amputation 458
- Symphysis Subcutaneous 314
- Syncope as related to sympathetic nervous system 45,
- TALIPES** Correction of deformities of lower extremities 43
- Tannic acid Prevention of toxemia of burns by 233
- Taste Cause of pontine glioma with special reference to paths of gustatory sensation 94
- Teeth Dental sepsis and epistaxis 93
- Tendons Trigger finger and stenosing tendovaginitis of flexor 45 tran plantations of for division of extensor of fingers 136 regeneration of and treatment of ruptures of particularly in region of synovial sheaths 229 injury and regeneration of 328 tran plantation of pre-curved 39
- Tensor fasciae femoris Role of in deformities of lower extremities 41
- Testicle Evolution of of bull after crushing of vas deferens 226
- Tetanus Incidence and treatment of 35
- Tetany Following operations on thyroid gland 189 as cause of gastric disturbances 250 chronic in adults and tran plantation of human parathyroids by method of Voronoff 452
- Tetrachlorophenolphthalein Liver function test with in toxicoes of pregnancy 310
- Thoracotomy Treatment of obliterative pericarditis and precordial 466
- Thoracic duct Lymphatic drainage 53
- Thoracotomy Its ability of preventing pleural effusions following by artificial pneumothorax 193
- Thorax See Chest
- Throat See Larynx
- Thumb New operation for opponens paralysis of 49
- Thyroid Substernal 6 fate of blood supply of after thyroidectomy with special regard to formation of new capsule, metastasis from to bones 9 importance of in relation to certain varieties of heart disease 95 relation of cholesterinaemia and calcemia in conditions of to basal metabolism 95 tetany following operations on 189 exophthalmic goiter and tuberculo is of 189 clinical and pathological study of malignant neoplasms of 190 physiology of from standpoint of pathology of 265 diagnosis and medical treatment of diseases of 266 surgery of 266 radiation in diseases of 266 diagnosis of toxicity 267 heart in toxicity 267 action of cytotoxic serum on carcinoma of 269 in relation to toxic goiter 368 grafts of 3,0 hit to logical changes in in animals injected with extract of corpus luteum 449 participation of in elevation of basal metabolism during pregnancy 466 See also C oiter
- Thyroidectomy Late of blood supply of thyroid after with special regard to formation of new thyroid capsule 7 total in thyrotoxicosis of exophthalmic type, tetany following operations on thyroid gland 189 transplantation of parathyroid in partial 190 hyperthyroidism persisting after 452
- Thyrotoxicosis Influence of on gastric secretion 6
- Tibia Treatment of fractures of upper end of 42 treatment of imperfectly consolidated humeral fractures 495
- Tongue Treatment of carcinoma of 94 radium therapy in cancer of and secondary involvement of lymph nodes 186 radium emanation in treatment of cancer of 262 results obtained in cancer of treated with radium and roentgen rays 262 technique of use of removable radon seeds in carcinoma of 264
- Tonsils Radical cure of peritonsillar abscess 368
- Trachea Tumor of 15 treatment of chronic stenosis of 96 foreign bodies in tracheobronchial tree 19 displacement of larynx and in extirpation of tumors of cervical portion of oesophagus 199 use of injected iodized oil in roentgen ray diagnosis of conditions of 462 effects of partial obstruction of on circulation and respiration of morphinized dogs 463
- Trachoma Surgery of 3
- Transfusion See Blood transfusion
- Tran plantation Significance of specific organ immunity to 340
- Trigger finger and stenosing tendovaginitis of flexor tendons of finger 45
- Tuberculo is Heliotherapy in and new instrument for its use 57 roentgen therapy in surgical 143 exophthalmic goiter and 189 relationship between pregnancy and 402 general light treatment in surgical 423 experience in connection with light treatment in surgical 423 roentgen ray treatment of surgical 423 See also names of organs
- Tutocain Effect of paravertebral injections in aneurysm 195
- ULCER** Late results of periferomorph sympatheticotomy in varicose 99 See also names of organs
- Ulna Treatment of fractures of forearm 331
- Ultraviolet rays Lethal effect of on normal and malignant tissues grown *in vitro* 338
- Urachus Large closed cysts of 117
- Uremia Diagnosis between eclampsia and true 30
- Uterer Accidental section of during hysterectomy for large fibroid in right broad ligament 27 fate of phenol sulphon phthalein in normal pelvis with tied 36 arterial changes in progress in hydromphrosi of rabbits with complete obstruction of 36 diagnosis and differential diagnosis is of stone in and kidney 39 non operative in instrumental removal of stone in 128 annua for even days after catheterization of 128 hydromphrosi due to obliteration of in gynecological practice 129 effect on rate of development of hydromphrosi of simultaneous ligation of posterior branch of renal artery and on same side 224 accidental section of in hysterectomy for cancer treated by amputation 225 dilatation of with rubber bars in removal of calculi from 225 results of ureterorrhaphy at end of nineteen years 225 acute change in rabbit's kidney produced by ligating 319 impuritate supernumerary diagnosed by pyelography and treated by partial nephro ureterectomy 410 primary tumors of 411 See also Ureteric tract
- Ureterocystostomy Indication of nephrotoxic preliminary to 30
- Ureterorrhaphy Results of at end of nineteen years 225

- Urethra** Anatomical and histological study of mucosa and glands of 39. Hortheloup's resection of perineum for complicated gonorrhoeal strictures of 2. 7. use of heat and cold in 412. modifications of flap urethroplasty in perineal fistula of 412. *See also* Urinary tract
- Urethroplasty** Modifications of flap in perineal fistula of urethra 412
- Urinary tract** Conservatism in surgery of 41. haemorrhages from 26. shadows in from practical urological view 409. leucoplakia of 404. modern urological diagnostic methods in pediatrics 494
- Urine** Idiopathic incontinence of and laminectomy 98. operation for incontinence of following perineal prostatectomy 131. ammonium chloride as acidifier of 323. changes of reaction of a vital factor in treatment of primary acute bacterial cystitis, 323. nocturnal incontinence of in child 326. elimination of iodine in in normal patients and in xophthalmic goiter 450. lumbosacral laminectomy in retention and incontinence of due to spina bifida occulta 460
- Urobilin**, Relation of biliary infection to genesis and excretion of 391
- Uterus**, Adenomyomata of 25. results of operation for prolapse of 25. sarcomatous degeneration of myomata of 26. gonococcal endocervicitis 6. carcinomatous degeneration of heterotopic epithelial inclusions in 26. treatment of carcinoma of cervix by irradiation 6. dilatation of cervix by hydrostatic balloon 3. difficulties in labor in so called partial retroflexion of and their management in cases of advanced pregnancy 3. obstetrical results of shortening of round ligaments 118. prolapse operations and ability to bear children 118. endoscopy of 118. chancre of cervix 118. incompatibility of pregnancy and fibroids of 119. treatment of fibroids of 119. spontaneous rupture during pregnancy of previously subjected to caesarean section, 119. rupture of during pregnancy 121. pregnancy complicated by fibroids 122. changes in internal secretion after extirpation of 147. treatment of squamous cell epithelioma of cervix 216. endotheliomata of, 216. histological investigation of cancer of cervix of cured locally by radium and X ray treatment 216. radium treatment of carcinoma of 217. carcinoma of cervix treated exclusively by irradiation 217. cancer of cervix and pregnancy treated by caesarean section Porro's amputation and radium 220. cancer of cervix and pregnancy 221. blood and lymph vessel proliferations in uterine musculature 298. telangiectasis of 298. hemangioma of 298. angiohyperplasia of 298. angioadenomyohyperplasia of 98. lymphangioyctostofibroma of 298. method of endoscopic examination of 298. cervicitis erosion and laceration of cervix of from standpoint of pathology 98. small uncomplicated myoma producing bleeding 199. indication of myoma of 99. summary of results in myoma of 99. fibromyomata of treated by surgical operation or intensive X ray therapy, 99. clinical manifestations of myoma of 299. incidence of carcinoma in cervix following supravaginal hysterectomy 300. broad ligament extension in carcinoma of cervix 300. surgery radium and roentgen rays in treatment of carcinoma of cervix 301. carcinoma of fundus 301. results of irradiation of cancer of 302. protracted irradiation of carcinoma of cervix with radium 303. bacterial content of uterine cavity during pregnancy 312. end results of operation for prolapse of 398. conservative and operative treatment of hemorrhages from 398. cancer of cervix treated with radium at distance 399. use of milk injections in pelvic inflammation 399. pelvic inflammation in women 399. cultural method of testing virulence of bacteria from cervix and vagina and its significance with regard to postoperative morbidity and mortality 400. effect and risks of radium treatment in benign gynecological complaints 401. rupture of in case of face presentation treated by hysterectomy 406. conservative treatment of uncomplicated retrodisplacement of 480. axial torsion of fibromatous 480. treatment of cervical erosions with electrocoagulation 480. clinical and pathological features of puberty hemorrhage 480. practical treatment of myomata and hemorrhagic metropathies with X rays 481. value of biopsy 481. significance of histological malignancy index for prognosis and treatment of carcinomata of cervix 48. treatment of cancer of at the University Gynecological Clinic Berlin 483. death following application of radium in 483. carcinoma of cervix and fundus treated by combinations of surgery radium and roentgen ray 483. etiology of lacerations of with regard to pathological anatomical conditions 490
- VAGINA** Operative formation of double by transverse colporrhaphy for sterilization of female 30. cultural method of testing virulence of bacteria from cervix and and its significance with regard to postoperative morbidity and mortality 400. treatment of cancer of at University Gynecological Clinic Berlin 483
- Vagus nerve** Condition of in gastric and duodenal ulcer 203
- Van den Bergh reaction** Two forms of bilirubin demonstrated by 391
- Vas deferens** Evolution of testicles of bull after crushing of 26
- Vein** Successful suture of portal 32
- Veins** Morphological changes associated with partial occlusion of pulmonary of one lung 77. simple and combined ligatures of pulmonary vessels 464
- Vena cava** Ligation of inferior 23. cure of gigantic traumatic arteriovenous aneurism of abdominal aorta and inferior by Moore Corradi method 490
- Venoclysis or intravenous nutrition** 55
- Ventricular puncture in meningococcus meningitis** 314
- Virulence test** Cultural method of testing virulence of bacteria from cervix and vagina and its significance with regard to postoperative morbidity and mortality 400. in gynecology and obstetrics 401
- Vision** Fusion faculty and some of its anomalies 181
- Vitreous** Choked disk and opacities of following fracture of skull 3. lid traction the greatest safeguard against loss of in cataract operation 182. new vessel formation in 447
- WASSERMAN reaction in pregnancy** labor and puerperium 313
- Wounds** Effect of cathode rays on bacteria in fresh 337. healing of skin 510. newer findings with regard to healing of 511
- Wrist** Localized tuberculous arthritis of in children 496
- X RAY** *See* Roentgen ray

# INDEX TO BIBLIOGRAPHY

## SURGERY OF THE HEAD AND NECK

Head 61 148 236 341 424 512  
 Eye 61 148 36 341 424 512  
 Ear 6 140 237 34 425 513  
 Nose and Sinuses 62 149 237 342 426 514  
 Mouth 63 150 238 343 426 514  
 Pharynx 63 150 38 343 426 514  
 Neck 63 150 238 343 4 6 514

## SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings Cranial Nerves 64 151 239 344 427 515  
 Spinal Cord and Its Coverings 65 152 240 345 428 515  
 Peripheral Nerves 65 152 240 345 428 516  
 Sympathetic Nerve 65 152 240 345 428 516  
 Miscellaneous 65 152 40 345 429 516

## SURGERY OF THE CHEST

Chest Wall and Breast 66 152 41 345 429 516  
 Trachea Lung and Pleura 66 153 41 345 429 517  
 Heart and Pericardium 67 153 241 346 430 517  
 Esophagus and Mediastinum 67 153 241 346 430 518  
 Miscellaneous 67 153 4 346 430 518

## SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum 68 154 242 347 430 518  
 Gastric Intestinal Tract 68 154 4 34 431 519  
 Liver Gall Bladder Pancreas and Spleen 69 155 243 348 431 519  
 Miscellaneous 69 155 243 350 434 520

## GYNECOLOGY

Uterus 70 156 46 350 444 521  
 Adrenal and Peritoneal Cavity 71 157 24 351 445 522  
 External Genitalia 71 157 248 351 445 523  
 Miscellaneous 71 157 48 351 445 523

## OBSTETRICS

Pregnancy and Its Complications 72 158 24 352 446 524  
 Labor and Its Complications 73 159 50 353 447 525  
 Puerperium and Its Complications 74 160 250 354 448 526

Newborn 77 163 251 354 439 529  
 Miscellaneous 77 163 251 354 439 529

## GENITO URINARY SURGERY

Adrenal Kidney and Ureter 77 164 251 354 439 530  
 Bladder Urethra and Penis 78 164 252 355 440 530  
 Genital Organs 79 165 252 355 440 530  
 Miscellaneous 79 165 253 355 441 531

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS

Conditions of the Bones Joints Muscles Tendons 80 165 253 356 441 531  
 Surgery of the Bones Joints Muscles Tendons 81 167 254 357 442 532  
 Fractures and Dislocations 81 167 254 357 443 533  
 Orthopedics in General 168 255 357

## SURGERY OF THE BLOOD AND LYMPH SYSTEM

Blood Vessels 82 168 255 358 444 534  
 Blood Transfusion 83 168 255 358 444 534  
 Lymph Vessels and Glands 83 169 255 358 444 535

## SURGICAL TECHNIQUE

Operative Surgery and Technique 1. Topical Treatment 83 169 256 358 444 535  
 Antiseptic Surgery Treatment of Wound and Infection 84 169 256 358 445 536  
 Anesthesia 84 170 256 358 445 536  
 Surgical Instruments and Apparatus 256

## PHYSIOCHEMICAL METHODS IN SURGERY

Röntgenology 84 170 256 359 445 536  
 Radium 84 170 257 359 445 537  
 Miscellaneous 85 170 257 359 445 537

## MISCELLANEOUS

Clinical Investigations—General Physiological Conditions 85 171 257 359 445 537  
 Central Nervous System and Parasitic Infections 86 171 257 360 446 538  
 Duets Clinical 86 171 258 360 446 538  
 Surgical Pathology and Diagnosis 87 258 360 446 539  
 Experimental Surgery 88 172 258 360  
 Hospitals Medical Education and History 89 259  
 Medical Jurisprudence 259

# AUTHOR INDEX

- Aaron, A H 2  
 Abbott, L C, 229 33  
 Abramowa A, 278  
 Abt I A 385  
 Adam, J, 15  
 Adrogue L, 89  
 Adon A W, 362  
 Ahlen N 272  
 Albano G 419  
 Albec F H 230  
 Albert, 312  
 Aleman O 189  
 Alexander E G 465  
 Alglave 408  
 Allan R M, 309  
 Allen E 484  
 Allen W M 31  
 Allenbach 410  
 Allison N, 228  
 Amberger, -04  
 Amosov A 459  
 Andérodias 486  
 Antonucci, C 389  
 Arens R A 409  
 Arneil J R 95  
 Arnold L, 48  
 Ascher K W 340  
 Aschner B 308  
 Ascoli M 388  
 Ashby H T, 115  
 Ashhurst A P C 333  
 Astérides T, 81  
 Averett, L 123  
 Ay aguer 412  
  
 Babcock W W 19 56 211  
 Badylas S 6  
 Bagley C H, 259  
 Balard 486  
 Ballance Sir C, 361, 505  
 Ballon D H 277  
 Barbaro 106  
 Barbezzer 377  
 Bardachy F 481  
 Bardeen C R 143  
 Barga J A 474  
 Bassenko L L 69  
 Basset A, 207 281  
 Bassler, A 280  
 Batson O V 45  
 Bauer K H 285  
 Baum H L, 368  
 Baumgartner R, 376  
 Bazala G 313  
 Bazzin A T 390  
 Bazy P 430 2 7 326  
 Becker C 26  
 Bégoun 483  
 Behrendt H 304  
 Belfield W T, 494  
 Beresow J, 479  
 Beretevide J J, 107  
 Berger S S 210  
  
 Berkoff, H S, 305  
 Berman, L 7  
 Berner J H, 204  
 Berry Sir J, 6  
 Berry J M, 135  
 Bewen E 264  
 Beykuch A 188  
 Bigelow G H 146  
 Bigger, I A 141  
 Billings, A L, 378  
 Bircher E 286  
 Bird C E, 37  
 Blair, V P, 7  
 Blair Bell W 234, 339  
 Blalock A 463  
 Bland, P B 480  
 Blaustein, N, 323  
 Block F D, 299  
 Block W 331  
 Bloodgood J C 275, 421  
 Blotner, H 508  
 Blum F, 96  
 Boattini G 370  
 Boeckel 410  
 Boehringer, K 128  
 Bohmanson, G, 471  
 Bohnen P 310  
 Boldero H E A 16  
 Bolling R W, 207 208  
 218  
 Bomash I, 499  
 Bonani G, 99  
 Bonnet L, 212  
 Bordet, F 376  
 Boros, J 56  
 Bormann K, 310  
 Botteselle, R 412  
 Bouchard 225  
 Bovin, E 22  
 Bowers, M R, 408  
 Bowing H H 301 483  
 Boyd W, 196  
 Brannan D, 30, 59  
 Bransburg 100  
 Bréchet 98  
 Brezovnik V 43  
 Bridgman E W 29  
 Briggs W T 494  
 Brockbank E M, 93  
 Brodersen N H 189  
 Brooks L 201  
 Brown A 455  
 Brown G E 500  
 Brown H F R 62  
 Browne F J, 403  
 Brunner H 191  
 Bryant J 418  
 Bufalini M 104  
 Bugbee H G 321  
 Bullard E A 398  
 Bunnell S 198  
 Bunts F E 14  
 Burcham T A, 266  
  
 Burrows, M T, 234  
 Busacca, A, 329  
 Buschmann, T W 463  
 Butler, E, 206  
 Butler, P F 200  
 Butler, T H 259  
 Buxton St J D 331  
 Byron, C S 305  
  
 Camp J D 473  
 Campbell A, 368  
 Canney J R C 207  
 Cantelmo O, 110  
 Capecechi E 394  
 Cappell D I, 134  
 Carlson E 198  
 Carman R D 18 474  
 Carson W J 404  
 Case, J T 388  
 Caster R, 95  
 Caster, M R 107 114  
 Castlen C R 463  
 Cattaneo G 413  
 Cattell, R B, 450  
 Caudière 404  
 Caylor H D 18  
 Cazin, 293  
 Celiberti A 389  
 Chamberlain R S, 34  
 Champion M E 146  
 Champlin J Jr 399  
 Chassard 47  
 Chatellier, H P 366  
 Chauvin 499  
 Cheate, G L, 145  
 Cherry T H 307  
 Chievit, O, 423  
 Churay 114  
 Christopher, F 230  
 Chute A L 126  
 Cientes 321  
 Cirillo G, 126  
 Clapp, C A, 447  
 Clark, J G 25, 26 299,  
 301  
 Clark, W L 57  
 Clément, R 121  
 Clerf, L H 197, 199  
 Clute H M, 189 452 475  
 Cobb S, 458  
 Cochran, R C, 59  
 Codman, E A, 133  
 Coenen, H 457  
 Coffey R C 20 114  
 Cohen, I 215 225  
 Cohen M 30  
 Cohen M B 210  
 Cohen M J 327  
 Cohen S, 91  
 Cokkals P 8  
 Cole W H 2 133, 390  
 Colebrook L 33  
 Cohez, R, 399  
  
 Collinson G A, 391  
 Coman, F D, 99  
 Commandeur, 20  
 Commenge, 127  
 Comolli, A, 452  
 Comte H, 469  
 Condamin 127  
 Conn H R 52  
 Conway J A 9  
 Cope, Z 145  
 Copher G H 22 390 476  
 Costain W A 53  
 Cottle, M H 185  
 Cotton F J 136  
 Coulaud, E 269  
 Counsellor, V S 294  
 Courboulès 394  
 Courty 408  
 Coventry W A 462  
 Cowan A 259  
 Creed, E 90  
 Creysse, J 205 280  
 Crle G W 147, 209 369  
 Cron R S 118  
 Cross, W W 493  
 Crossan, E T 333  
 Crousse, 306  
 Cumberbatch E P 134  
 Cunningham, J H, 323  
 Curtillet J 50  
 Curtis L, 181  
 Cushing E H 23  
 Cushman B, 181  
 Cutler, C W Jr 230  
 Cutler E C 458  
  
 D Agata G 409  
 Daniel C, 120  
 Darcissac, 448  
 Danaux, A 366  
 Davidson E C 43 233  
 Davies, H M, 11  
 Davis A B, 487  
 Davis, A G, 48  
 Davis J S 233 337  
 Davis, L, 191 460  
 Dazzi A 456  
 Dean L W, 185  
 De Asis, C 234  
 Delore, N 203 205 280  
 469  
 Delprat G D 206  
 De Martel 372  
 De Martel I 374 395  
 De Quervain, F 265  
 De Rougemont, J 205 280  
 Desgouttes D 52  
 Desjardins, A U, 509  
 Destéfano T 55  
 D Herulle, F, 55  
 Dickey, L B 125  
 Dieckmann W J, 492  
 Dieterich, W, 202



- Ranson S W 438  
 Rappoport P L 502  
 Razemon H 449  
 Read J M 6  
 Reeb 485  
 Regaud C 186  
 Reinecke R 199  
 Reine G G 40  
 Rejsk J 19  
 Retherer E 26  
 Revel 312  
 Reverchon 367  
 Reyn A 144 338  
 Reynold F L 441  
 Ricard A 52  
 Riden L 113  
 Richards G E 101  
 Richardson E L 451  
 Richter H M 22  
 Riddel J 121  
 Ritter H H 138  
 Ritter O 304  
 Rives J D 291  
 Roberts R E 327  
 Robineau 201  
 Robinson C A 134  
 Rocher H L 328  
 Rockwood I 30  
 Rodriguez M C 112  
 Roethli A 89  
 Rogers F T 300  
 Rogers L 68  
 Rogers W A 49  
 Rolleston Sir H 139  
 Rollier A 135  
 Rolnick H C 226 494  
 Romano N 107  
 Rosanov W 455  
 Rose D K 39  
 Rose E 385  
 Ros J W 19  
 Rossier 315  
 Roost F 02  
 Rouvillois 498  
 Rout J L 387  
 Rowan C J 266  
 Rowlands R P 252  
 Royston G D 108  
 Rubenstone A I 209  
 Rubin F H 3  
 Rubritius H 411  
 Rucker M P 405  
 Rud H 216  
 Rufanoff I G 478  
 Rusche C F 410  
 Ruskun S L 91  
 Rutherford C W 4  
 Ryle J A 282 395  
 Sachs E 10  
 Samuels S 28  
 Sanger B J 267  
 Saraceni F 389  
 Sargnon 366  
 Scarlett H W 447  
 Scheele K 130  
 Schiffmann J 306  
 Schlaak A 304  
 Schlaepfer K 277  
 Schmid O 203  
 Schmutz H 48  
 Schreiner B F 186 262  
 Schroedl P 328  
 Schteingart M 95  
 Schulte W G 224  
 Schwartz J 37  
 Schwarz G 307  
 Schwarz O 411 492  
 Stimson V 452  
 Scott S 361  
 Sears W H 375  
 Sebestyén G 13  
 Sebestyén J 278  
 Seifert E 255  
 Sellheim 316  
 Selman J J 210  
 Sendrahl 486  
 Senty L G 266  
 Sequiera J H 145  
 Sergeant L 376  
 Seuburger F 296  
 Sewall L C 192  
 Seymour H T 118 298  
 Shambhugh G E 182  
 Shapiro L L 470  
 Shaw E C 131  
 Shaw E H 145  
 Shaw W 27 218  
 Shea J J 448  
 Sher R L 465  
 Shervin C I 21  
 Shibley G S 4  
 Sicard 201  
 Sicard J A 57  
 Siedamgrotzky 43  
 Simpson F L 262  
 Simpson W M 95 190  
 Singleton A O 10  
 Skillern S R Jr 63  
 Slesinger E C 331  
 Slye M 234 421  
 Smirnov S 464  
 Smith A DeT 44  
 Smith F 142  
 Smith H 260  
 Smith L A 23  
 Smith Petersen M N 49  
 Smyth C M Jr 28  
 Smyth D C 365  
 Snell A M 112  
 Sobn A 12  
 Solland A 210  
 Sommaru 27  
 Solé R 105  
 Sonne C 338  
 Sorrel E 496 497  
 Southam A H 115  
 Souttar H S 504  
 Speiser M D 23  
 Spakajan P G 501  
 Samann N N 456  
 Sokoloff W I 502  
 Sokolov S 289  
 Stahnke F 283  
 Stander H J 31 494  
 Steinach F 305  
 Steinhilber B 201  
 Stephenson F I A 310  
 Stetten DeW 11  
 Stewart R L 411  
 Stieff 130  
 St John E B 186 394  
 Stockmeyer A M 330  
 Stone F L 32 407  
 Stout A I 23  
 Strada F 88  
 Strauss A A 382  
 Stroganoff H 487  
 Stulz C 106  
 Sturtevant M 470  
 Suter G F 181  
 Summers J L 288  
 Sun A C 406  
 Sundell C 492  
 Surrao L A 324  
 Suzor 306  
 Syme W S 134  
 Talbot J E 487  
 Tavares A 361  
 Tavernier 406  
 Tawse H B 91  
 Taylor A S 9  
 Tengwall E 413  
 Terrada H M 15 115  
 Testu C 497  
 Teutschlaender O 289  
 Thalheimer M 205  
 Thearle W H 11  
 Theobald G W 405  
 Thomas T T 229  
 Thomson J E M 138  
 Thomson Sir StC 370  
 Tilher R 50  
 Timme W 98  
 Todd K W 60  
 Tolstikoff D F 499  
 Tower I F 213  
 Towne E B 9  
 Traut H F 337  
 Troell A 215  
 Trotter W 5  
 Truesdell E D 474  
 Tsaros 367  
 Tucker G 381 381  
 Tuft L 209  
 Turner A L 447  
 Tweedie A P 361  
 Uffenorde W 265  
 Ulesco-Stroganowa K 216  
 Unger A S 23  
 Vaccarezza P F 55  
 Vachey A 03  
 Valentin B 289  
 Van Gelse I H G 5  
 Vanverys J 118  
 Van Wyck H B 123  
 Veckl M 36  
 Veresainsky A 468  
 Verga I 193 456  
 Verhoeff F H 181  
 Vesell H 21  
 Vigny 26 J 283  
 Villegas R R 294  
 Violet 25  
 Viten L E 60  
 Vogt E 118  
 Voltz F 217  
 Von Angerer C 337  
 Von Bodo R 220  
 Von Kuettnier O 26  
 Von Magnus R 102  
 Von Redwitz E 191  
 Von Sarkis A 191  
 Von Stapelmohr S 20  
 Voorhoeve N 54  
 Vurwink J 487  
 Wagner H 488  
 Wannwright J M 235  
 Wallace W J 130  
 Walther H W E 26  
 Walton A J 472  
 Ward G G 217  
 Warren S L 338 421  
 Watson B P 219  
 Webb C H 225  
 Weeks A 201  
 Weeks J F 181  
 Weigand H 305  
 Weiser A 322  
 Weiss E A 119  
 Wentworth F T 46  
 Wertheimer P 270  
 Wesson M B 35  
 Westphal U 405  
 Wetterstrand G A 21  
 Wheeler Sir W I E 263  
 Whipple A O 115  
 Whitby I E H 16  
 Widmann B P 378  
 Wiedhopf O 334  
 Wiesner B P 305  
 Wilensky A O 228 4  
 Wilkin R J 36  
 Willard DeF P 48  
 Williams J W 406  
 Wilson C P 463  
 Winkelbauer A 191  
 Winslow N 12  
 Wittek A 49  
 Wolf C G L 20  
 Wolfe S A 480  
 Woodburn J J 370  
 Woolbridge G H 135  
 Woringer I 106  
 Wright F R 324  
 Wright V W M 282  
 Wuesthoff H 124  
 Wurtzel G I 138  
 Young H H 414  
 Young J 510  
 Young C C 47 48  
 Yule G W 407  
 Zange 270  
 Zavalla I U 83  
 Ziegler J M 418  
 Ziegler S L 3  
 Zink O C 210  
 Zinniger M M 45

